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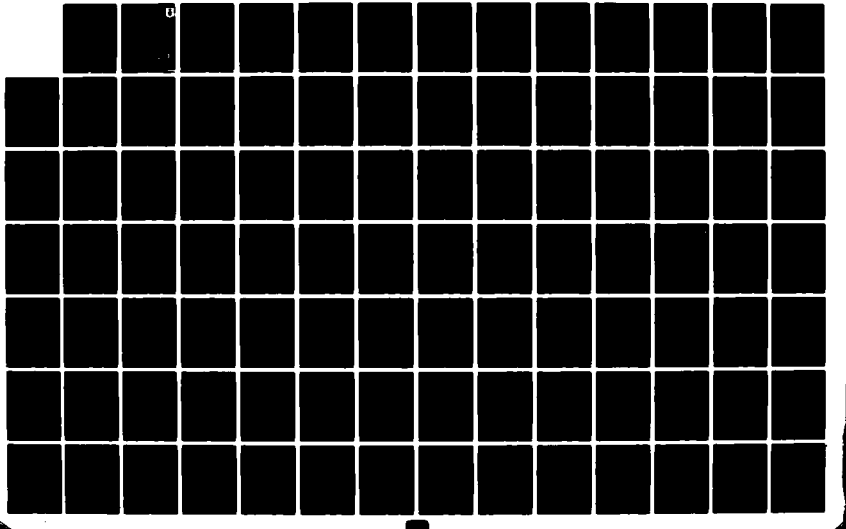

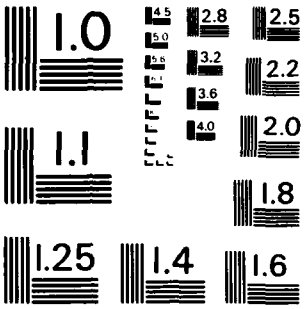


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# AISIM INSTALLATION AND ACCEPTANCE TEST PLANS AND PROCEDURES

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Box 3310
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Approved for public release; distribution unlimited

26 February 1982

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This document describes the procedures for installing and conducting the installation and acceptance testing of the Hughes developed Automated Interactive Simulation Model (AISIM).

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# 1. INTRODUCTION

This document describes the procedures for installing and conducting the installation and acceptance testing of AISIM Version 2.0. Comprehensive testing of a system can be divided into three categories: component testing, integration testing, and demonstration testing.

Component testing is intended to verify that each system component works properly. Such testing is the sole responsibility of the developers and, therefore, is beyond the scope of this document.

Integration testing is intended to show that all the components operate together properly. This testing is planned and performed by the developers.

Demonstration testing is intended to show that the system meets its functional requirements. This testing is broken into two phases: 1) installation testing and 2) acceptance testing. Hughes has developed the procedures for performing these tests and they are contained herein. Testing should be performed by personnel representing the contractor and the customer.

This document also contains a description of the contents of the system tape - its files and organization. The procedures for loading this tape on the host computer and then building the AISIM system are described in detail.


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## 2. SYSTEM GENERATION PROCEDURES

The data necessary to install AISIM on a suitable computer system are described in this section.

### 2.1 Host System Requirements

Before AISIM can be installed on a computer (or "host") system, the following constraints must be satisfied:

1. The prospective host must have an interactive operating system that is compatible with IBM 370 file structures;

2. A FORTRAN IV compiler must be available;

3. A SIMSCRIPT II.5 compiler must be available;

4. A copy of the PLOT10 package must be available;

5. The host must have the memory capacity to handle the largest load module (i.e., the DESIGN program: 868,648 bytes), or the ability to segment load modules into manageable chunks.

If any of these conditions are not met, AISIM cannot be successfully installed on that system.

### 2.2 Rehosting AISIM

There are two different scenarios to which this section is directed. The first is the user who has an IBM 370/MVS EXTENDED TSO machine and wants to get AISIM up as quickly as possible. After dumping the files from the tape, this user should only have to alter the CLISTS and will then be able to execute the system. Section 2.3 describes how to dump the files from the tape and section 2.4.2 describes how to set up the CLISTS to execute AISIM on the new host system.

The second scenario is the user who determines that the operating system of the target host machine is not exactly compatible with IBM 370/MVS EXTENDED TSO. In this case the user will have to do more work, the amount being relative to the number of system incompatibilities. The user will probably have to recompile the source files, create new data bases, and bring AISIM up from scratch. This user should consult section 2.3.1 on dumping the files from the tape and section 2.4.3 on bringing AISIM up from scratch.

### 2.3 Reading the AISIM Tapes

Following is a list of the types of files which are on the AISIM tapes.

1. Fortran source files: xxxx.fort - The Fortran routines make up the source for the Design, Replot, and Hardcopy Functions, the translator, and the user interface for the Analyze and Library Functions.

2. The AIS.GFM.DATA, AIS.CHECKIN.DATA, and AIS.MERGEIN.DATA files - These are the simscript II.5 source code for the AISIM simulator and Library Function. These programs are split up into functional parts and stored in partitioned data sets (PDS).

3. Load Modules: AIS.SYSTEM.LOAD and AIS.LIBUTIL.LOAD - These are the load modules for executing the AISIM system.

4. CLISTS: xxxx.clist - These are the command procedures that are executed to build and run the system.

5. Data Bases: xxxx.dbf - These are the initialized AISIM start data bases, the System Library data base, and the data bases to be used in conjunction with the test procedures for verifying the operation of AISIM.

6. JCL files: CRKEX1.CNTL and CRKSR1.CNTL - These are Job Control Language (JCL) files which will dump the files from the tapes to a disk.

7. Miscellaneous files: everything else - These include the data base schemas and data used to initialize AISIM data bases.

Note: There are no object files contained on these tapes. The IBM utilities used to create the tapes were IEBCOPY for the PDS's and IEBGENER for the sequential data sets. In order to make unloading the tapes as easy as possible, a file has been placed on each of the tapes to read the tape files to disk. These files also use IEBCOPY and IEBGENER to handle the PDS's and sequential data sets, respectively. These files must be modified before they can be executed:

1. The data set names in the JCL, indicating the names under which the files are to be placed on the disk, must be fully qualified (without quotes). The JCL file must be modified to reference the account where the AISIM files are to be placed: all occurrences of 't******' must be changed to the appropriate identification of the account where the AISIM files are to reside.

2. The output disk where the files are to be placed must be specified. All instances of 'TSO###' must be changed to reference a valid disk unit. All references to UNIT should be changed to the appropriate reference.

3. Finally, the serial number of the tape must be specified. This name or number is assigned to the tape before it is mounted. The JCL assumes the tapes will be named AISSR1 and AISEX1, but this should be changed to be compatible with the actual labelling.

Following are the JCL files for retrieving the JCL files from the tapes. These programs will retrieve the JCL files which will read the files off of the tapes. These JCL programs must be written and modified as outlined in the above three steps. They can then be submitted to read from the tape the files which will load all of the AISIM files. The retrieved JCL files will be placed on the disk under the names CRKSR1.CNTL and CRKEX1.CNTL.

```
// EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN  DD DUMMY
//SYSUT1 DD UNIT=TAPE,VOL=SER=AISSR1,SPACE=(1,(1,1)),
//          LABEL=(39,NL),DISP=(OLD,PASS,KEEP),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)
//SYSUT2 DD DSN=T******.CRKSR1.CNTL,
//          UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO###,
//          SPACE=(TRK,(1,1),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
/*

// EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN  DD DUMMY
//SYSUT1 DD UNIT=TAPE,VOL=SER=AISEX1,SPACE=(1,(1,1)),
//          LABEL=(20,NL),DISP=(OLD,PASS,KEEP),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)
//SYSUT2 DD DSN=T******.CRKEX1.CNTL,
//          UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO###,
//          SPACE=(TRK,(1,1),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
/*
```

After the above changes have been made to the JCL files (CRKEX1.CNTL and CRKSR1.CNTL) from the tape, these files should execute without further difficulty. An attempt has been made to supply all of the necessary parameters to the JCL files, but if necessary, the files can be altered to suit specific needs. However, the input DCB paramenters should not be changed because the current parameters will ensure that the files are read correctly from the tape. Likewise the space allocations should be altered with care. If the space on the disk upon which the files are to reside is highly fragmented, it may be necessary to increase the allocations, but the allocations presently in the JCL file are the smallest possible with a margin of safety to ensure that there is enough space for normal allocation of the files.

Note: When the AISIM files are dumped from the tapes to disk,

there must not already exist on the disk any files with the same names as those assigned to the files on the tape. If files by those names already exist, the tape files with the duplicate names will not be dumped from the tape. If there are problems executing the JCL file, consult the IBM/MVS JCL manual.

2.3.1 Contents of the Tape The following is a list of all the data sets in the order in which they appear on the tapes, along with a brief description of each data set and its organization: PDS for partitioned data set and SEQ for sequential data set.

Tape AISSR1:

AIS.DDL.DATA - This is the schema for the design data base. (SEQ)

AIS.MODEL.DDL.DATA - This is the schema for the library model data base. (SEQ)

AIS.PLOT.DDL.DATA - This is the schema for the plot data base. (SEQ)

AIS.KERNEL.ADEGRAPH.DATA - This is the data for initializing the ADE graphics in the design data base. (SEQ)

AIS.KERNEL.FORMSPEC.DATA - This is the data for initializing forms in the design and library model data bases. (SEQ)

AIS.KERNEL.GRAPHICS.DATA - This is the data for initializing Process Primitive graphics in the design and library model data bases. (SEQ)

AIS.KERNEL.SYMBOL.DATA - This is the data for initializing the ADE symbol forms in the design data base. (SEQ)

AIS.SYSGEN.CLIST - These CLISTS are used to compile and link the AISIM system. (PDS)

AIS.SYSGEN.LINK.CNTL - These files are data used by the AIS.SYSGEN.CLISTs in performing links. (PDS)

ADBMS.SLIB.ASM - These are the ADBMS assembly language routines. (PDS)

AIS.IOLIB.ASM - These are the assembly language input/output routines. (PDS)

ADBMS.DBLIB.FORT - These are the ADBMS user and internal routines. (PDS)

| | |
|---|---|
| ADBMS.FLIB.FORT | - These are the ADBMS utility routines. (PDS) |
| AIS.ADEDBL.FORT | - These are the ADE data base access routines. (PDS) |
| AIS.ADELIB.FORT | - These are the ADE top level routines. (PDS) |
| AIS.ANLDBLIB.FORT | - These are the Analyze and Replot data base access routines. (PDS) |
| AIS.AUILIB.FORT | - These are the Analysis User Interface routines. (PDS) |
| AIS.CLILIB.FORT | - These are the Command Language Interface routines. (PDS) |
| AIS.COXLAT.FORT | - These are the Fortran Checkout Function routines. (PDS) |
| AIS.DBDLIB.FORT | - This contains the utility utines for initializing data bases and th· .DBMS common block. (PDS) |
| AIS.DBLIB.FORT | - These are the Design data ;e access routines. (PDS) |
| AIS.DUILIB.FORT | - These are the top level Design User Interface routines. (PDS) |
| AIS.FAST.FORT | - These routines buffer data to and from the terminal to speed graphics. (PDS) |
| AIS.HCLIB.FORT | - These are the routines for the Hardcopy Graphics Function. (PDS) |
| AIS.HPLIB.FORT | - These routines control the HP terminal. (PDS) |
| AIS.INITDB.FORT | - These routines are used to generate new initialized data bases. (PDS) |
| AIS.IOLIB.FORT | - These routines perform data I/O between AISIM and the host system communications. (PDS) |
| AIS.LIBUSIF.FORT | - These are the routines for the Library User Interface. (PDS) |
| AIS.LPTLIB.FORT | - These routines are used in the generation of a legal path table. (PDS) |
| AIS.MOXLAT.FORT | - These are the Fortran Mergeout Function routines. (PDS) |

| | |
|---|---|
| AIS.OFDLIB.FORT | - These are the routines for the Process Editor Interface. (PDS) |
| AIS.PLOTFLIB.FORT | - These are the routines for the Replot Function. (PDS) |
| AIS.PLOTL.FORT | - These routines are used to draw linear graphics. (PDS) |
| AIS.TTYAUI.FORT | - These are Analysis support routines. (PDS) |
| AIS.XLATLIB.FORT | - These are the Translator routines. (PDS) |
| AIS.CHECKIN.DATA | - These are the Simscript routines for the Checkin Function. (PDS) |
| AIS.MERGEIN.DATA | - These are the Simscript routines for the Mergein Function. (PDS) |
| AIS.SIMLATOR.DATA | - These are the Simscript routines for the Analyze Function. (PDS) |
| CRKSR1.CNTL | - This is the JCL file for dumping all of the above files to disk. |

Tape AISEX1:

| | |
|---|---|
| AIS.LIBUTIL.LOAD | - This the load module for the Library Function. (PDS) |
| AIS.SYSTEM.LOAD | - This is the load module for the rest of the AISIM system. (PDS) |
| AIS.CONTRL.CLIST | - These are the CLISTS which control the execution of AISIM. (PDS) |
| AIS.USER.CLIST | - This is the CLIST which is placed on the user's ID to enable access to the AISIM system. (PDS) |
| AIS.MESSAGES.TEXT | - This contains text messages which can be displayed at the start of an AISIM session. (PDS) |
| AIS.VERSION.TEXT | - This contains text messages which can be displayed for a specific version of AISIM. (PDS) |
| AIS.STARTDB.DBT | - This is the initialized data base table for the Design Function. (SEQ) |

AIS.MODEL.STARTDB.DBT - This is the initialized data base table for the Library Function. (SEQ)

AIS.PLOT.START.DBT - This is the initialized data base table for the Replot Function. (PDS)

AIS.STARTDB.DBF - This is the initialized start data base for the Design Function. (SEQ)

AIS.MODEL.STARTDB.DBF - This is the initialized start data base for the Library Function

AIS.PLOT.STARTDB.DBF - This is the initialized start data base for the Analyze Function. (SEQ)

AIS.SYSTEM.LIBRARY.DBF - This is the initialized start data base for the System library for the Library Function. (SEQ)

TESTDB1.DBF - This is a data base to be used in the Installation Test Plans and Procedures. (SEQ)

TESTDBA.DBF - This is a data base to be used in the Installation Test Plans and Procedures. (SEQ)

TESTDBB.DBF - This is a data base to be used in the Installation Test Plans and Procedures. (SEQ)

TESTDBC.DBF - This is a data base to be used in the Installation Test Plans and Procedures. (SEQ)

TESTDBD.DBF - This is a data base to be used in the Installation Test Plans and Procedures. (SEQ)

TESTDBE.DBF - This is a data bse to be used in the Installation Test Plans and Procedures. (SEQ)

CRKEX1.CNTL - This is a JCL file to dump all of the above file to disk. (SEQ)

Appendix A shows the JCL which was used to place the files on the tape and read the files from the tape.

## 2.4 Building AISIM

### 2.4.1 General Information About Host System Requirements

Following is a list of conditions which must exist on the host system in order for AISIM to be executable.

- The host system must allow a terminal transmission length of at least 620 bytes in order to accommodate the largest form displayed by AISIM.

- The ASCII to EBCDIC translation table in AIS.IOLIB.ASM(anyout) must generate EBCDIC code which is compatible with what the host system expects.

- The terminal line size must be at least 80 characters per line to accommodate Fortran read statements in the AIS.CLILIB.FORT routines.

2.4.2 Executing Existing Load Modules A user who has an IBM 370/VMS EXTENDED TSO machine available and who wants to get AISIM up as quickly as possible can do so by simply executing the load modules loaded from the tape. It will not be necessary to bring up the system from scratch.

In order to execute AISIM, the user will need the load modules for the system and the controlling CLISTS (i.e. everything read from tape AISEX1). The necessary load modules are all in the PDS's ais.system.load and ais.libutil.load. The data bases are ais.startdb.dbf, ais.model.startdb.dbf, ais.plot.startdb.dbf, and ais.system.library.dbf. These data bases are already initialized and ready to be used to create a user's data bases. When a user invokes AISIM and does not have an existing data base, a copy is made of the AISIM start data base. These start data bases should never be used as a user's data base.

Before the system can be executed, the execution CLISTS will have to be modified slightly. The file ais.user.clist(ais) is the top level CLIST used to execute AISIM. This file calls the ais.contrl CLISTS which actually control the execution of AISIM. The ais.user.clist(ais) and the files in ais.contrl.clist will have to be altered to access the catalog where the AISIM files are stored. Most of these files are currently set to execute off the account 'TF01508'; they should be changed to reference the account where the AISEX1 tape has been dumped.

2.4.3 Building AISIM From Scratch If the user determines that the operating system of the target host machine is not exactly compatible with IBM/MVS EXTENDED TSO, then bringing up AISIM will involve a bit more work. The amount of work necessary will depend on the extent of the incompatibilities. The following steps will outline what is necessary to bring up AISIM completely from scratch and the user will have to decide if some of these steps are unnecessary or if the entire system must be rebuilt.

2.4.3.1 Modifying Assembly Language Routines AISIM contains two data sets of assembly language routines: ais.iolib.asm and adbms.slib.asm. These routines are highly system dependent and thus will probably have to be rewritten. These can be used as a guide to what the routines must do, but host compatible routines must be created.

2.4.3.2 Altering The CLISTS First of all, the CLISTS must be altered. These CLISTS include the ais.user.clist, ais.contrl.clist, and ais.sysgen.clist data sets. If these CLISTS are completely unusable in their present form, the user can use them as a guide in writing his own CLISTS. If they can be executed as is, then only some minor modifications will be necessary. The ais.user.clist and ais.contrl.clist data sets which are used to execute the system must be modified as outlined in section 2.4.2. The files in the ais.sysgen.clist data set are used to compile the source files and link load the modules. All of the files in this data set will also have to be modified as in section 2.4.2 to reference the correct account. These files also usually access the account 'TF01508'. In the CLISTS, any data set which is referenced without single quotes around its name is assumed to reside in the user's own area. All data sets whose names are enclosed in single quotes reference data sets residing in the catalog whose name is the portion of the name up to the first period. For example the data set 'sys1.fortlb2' references the data set fortlb2 in the catalog 'sys1'. All data sets referenced in the CLISTS whose names are enclosed in quotes but which are not referenced as '&user' or 'TF01508' are system utilities on the user's system. The following is a list of the non-user data sets referenced in the CLISTS and a brief description of each.

| | |
|---|---|
| sys1.fortlb2 | - These are the system FORTRAN utility routines. |
| scin.tcs2lib | - These are the PLOT10 utility routines. |
| scin.simlib8 | - These are the Simscript system utility routines. |

2.4.3.3 Compiling AISIM The second step is to compile the source files. Each of the source data sets has a corresponding CLIST to compile the routines in the data set. All routines in each data set should be compiled. The following is a list of which CLIST is used to compile which data set. All of the CLISTS are in the partitioned data set ais.sysgen.clist so only the member name will be listed.

2.4.3.3.1 FORTRAN Subroutines The following are the FORTRAN subroutines and the CLISTS used to compile them and put the object code into load libraries.

ais.adbdbl.fort - adbdbl

adbms.dblib.fort - adbmsdb

ais.adbmslib.fort - adbmslib

ais.adedbl.fort - adedbl

ais.adelib.fort - adelib

ais.anldblib.fort - anldblib

ais.auilib.fort - auilib

ais.clilib.fort - clilib

ais.coxlat.fort - coxlat

ais.dblib.fort - dblib

ais.duilib.fort - duilib

ais.fast.fort - fast

adbms.flib.fort - flib

ais.hclib.fort - hclib

ais.hplib.fort - hplib

ais.iolib.fort - iolib

ais.iolib.asm - iolibasm

ais.libusif.fort - libusif

ais.lptlib.fort - lptlib

ais.moxlat.fort - moxlat

ais.ofdlib.fort - ofdlib

ais.plotflib.fort - plotflib

ais.plotl.fort - plotl

adbms.slib.asm - slib

ais.ttyaui.fort - ttyaui

ais.xlatlib.fort - xlatlib

All of the above compile CLISTS are executed by using the following command:

ex ais.sysgen.clist(above CLIST) 'routine name'

2.4.3.3.2 Common Block The ADBMS common block must also be compiled. It is compiled using the following command:

ex ais.sysgen.clist(dbblk)

2.4.3.3.3 Utilities The routines which are used to create an ADBMS data base and initialize that data base with AISIM forms and graphics data must also be compiled. These CLISTS which compile the necessary routines are listed and described below:

mddia - compile the program which creates a blank ADBMS data base.

mdbin - compile the program which initializes an ADBMS data base with necessary ADBMS data.

mdbdmain - compile the program which initializes an ADBMS data base with AISIM forms and graphics data for a design data base.

mdbimain - compile the program which initializes an ADBMS data base with AISIM forms and graphics data for a library model data base.

dbdiib - compile the subroutines which are used by the dbdmain and the dbimain programs.

The first four CLISTS are executed using the following command:

ex ais.sysgen.clist(above CLIST)

The last CLIST is executed with the following command:

ex ais.sysgen.clist(dbdlib) 'routine'

where routine is the name of the routine in ais.dbdlib.fort which is to be compiled. All routines in this data set should be compiled.

2.4.3.3.4 Mains All of the AISIM main programs must also be compiled. The files to execute are the following:

auimain - compile the Analyze Function main

checkin - compile the Checkin Function main

duimain - compile the Design Function main

hcmain - compile the Hardcopy Function main

mergein - compile the Mergein Function main

plotmain - compile the Replot Function main

xiatmain - compile the Translator main

These CLISTS are executed using the following command:

ex ais.sysgen.clist(above CLIST)

2.4.3.4 Linking The Load Modules After all of the files have been compiled, the next step is to link all of the load modules. The following CLISTS are used to link the various modules:

slnkddla - link the program which creates an emply ADBMS data base.

slnkdbin - link the program which initializes an ADBMS data base.

slinkdbd - link the program which initializes an AISIM data base with the forms and graphics data for a design data base.

slinkdbl - link the program which initializes an AISIM data base with the forms and graphics data for a library model data base.

slinkaui - link the Analyze Function.

slinkci - link the Checkin Function.

slinkcos - link the Checkout Function selection interface.

slinkcox - link the Checkout Function translator.

slinkdui - link the Design Function.

slinkhc - link the Hardcopy Graphics Function.

slinkmi - link the Mergein Function.

slinkmos - link the Mergeout Function selection interface.

slinkmox - link the Mergeout Function translator.

slinkpci - link the precheckin interface.

slinkplt - link the Replot Function.

slinkx - link the Translator.

The CLISTS slinkaui, slinkdui, slinkhc, slinkplt, and slinkx are executed using the following command:

ex ais.sysgen.clist(above CLIST) 'version'

where version is the number of the version to be linked. All of

the other CLISTS are executed as above, but without the version.

2.4.3.5 Build The Start Data Bases After all of the load modules have been built, the next step is to build the AISIM start data bases. The CLIST members which build the necessary data bases are the following:

allocdbd - build the Design start data base:
ais.startdb.dbf and ais.startdb.dbt.

allocdbl - build the Library model start data base:
ais.model.startdb.dbf and ais.model.startdb.dbt.

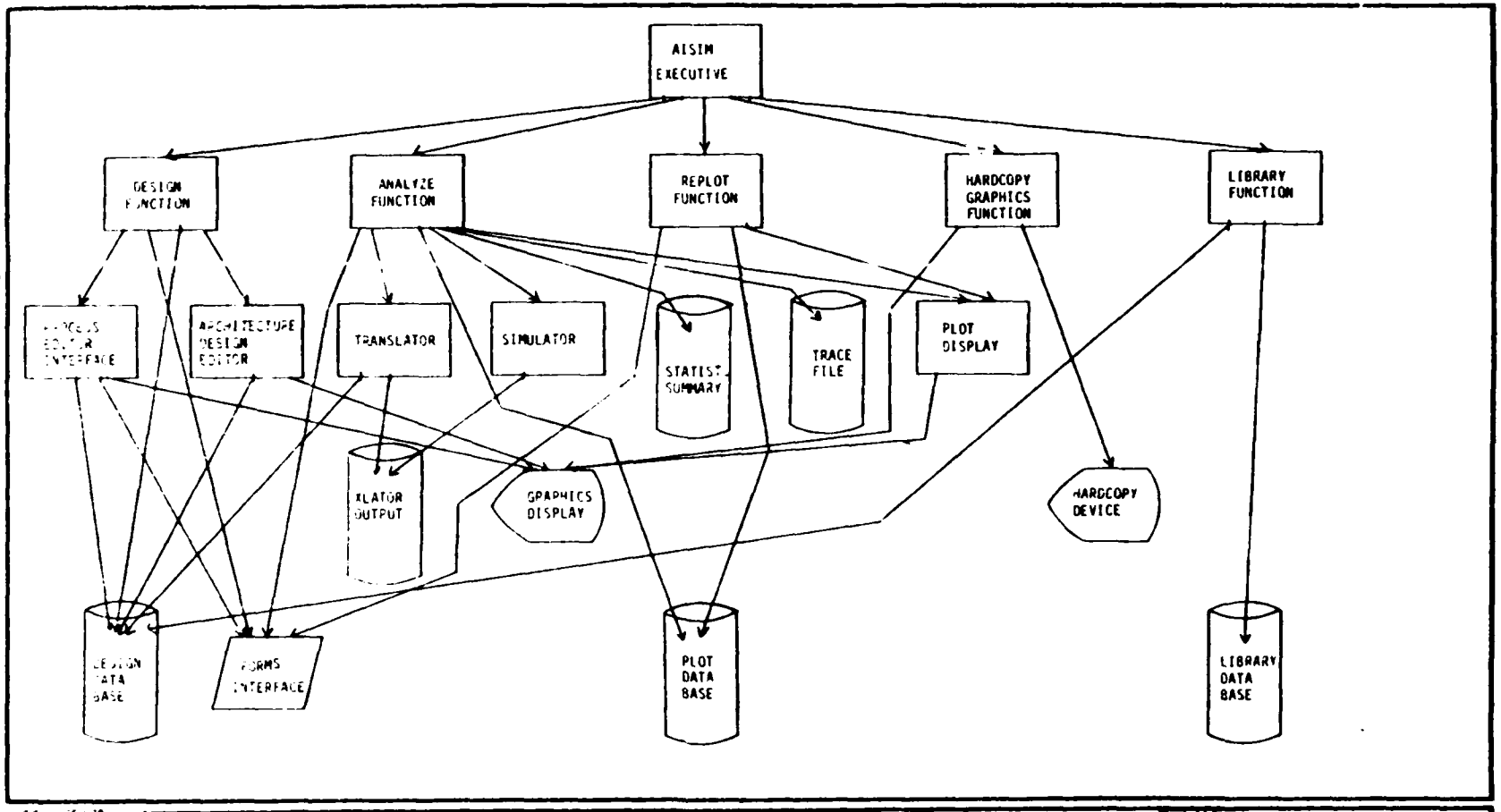
allocplt - build the Replot start data base:
ais.plot.startdb.dbf and ais.plot.startdb.dbt

These CLISTS are executed using the following command:

ex ais.sysgen.clist(above CLIST)

2.4.3.6 Test The System After the data bases have been built, the user is ready to execute AISIM. Assuming the CLISTS have been set up as described in section 2.4.2, the user should be able to invoke AISIM by entering the command AISIM. The operation of AISIM should then be verified using the procedures in this manual.

| USED AT | AUTHOR J. KNEEBURG | DATE 27 Oct. 81 | WORKING | READER | DATE | CONTEXT |
|---|---|---|---|---|---|---|
| | PROJECT AISIM | REV | DRAFT | | | |
| | NOTES 1 2 3 4 5 6 7 8 9 10 | | RECOMMENDED | | | |
| | | | PUBLICATION | | | |




| CODE | TITLE | NUMBER |
|---|---|---|
| | AISIM OVERVIEW | |

## 3. INSTALLATION TESTING

### 3.1 Test Descriptions

Installation testing of AISIM consists of verifying that all the components of the system work together properly. Figure 1 shows all these components and their relationships to one another. Five tests will be performed, each exercising one of the user interfaces and all of the components related to it.

3.1.1 Design User Interface Test Description The Design User Interface is used to create AISIM models. This includes the model entity definition which is performed under the Design User Interface, as well as the subordinate functions of the Process Editor Interface which is used to construct Processes, and the Architecture Design Editor which is used to specify a system architecture and its message routing characteristics. Test Procedure 3.4.1 is designed to show that the following capabilities are available:

- Create entities
- Copy entities
- Modify entities
- List entities
- Delete entities
- Save model data bases
- Add Process Primitives
- Change Process Primitives
- Delete Process Primitives
- Display various portion of Processes
- Creation of an architecture - placement of symbols and connections
- Definition of Resource attributes through symbol prototyping
- Movement of symbols and connections within architecture
- Windowing in architecture work space
- Creation of LPT both manually and automatically

3.1.2 Analysis User Interface Test Description The Analysis User Interface is used to run simulations of AISIM models. Test Procedure 3.4.2 is intended to show that the following capabilities are available:

- Translate models
- List certain entities
- Display certain entity statistics
- Modify certain entity values
- Establish breakpoints
- Cancel breakpoints
- Define plots
- Display plots
- Save plot sets (definitions or data)
- List saved plot sets
- Retrieve saved plot definition sets
- Run simulations

3.1.3 Replot User Interface Test Description The Replot User Interface is used to plot selected simulation results. Test Procedure 3.4.3 is designed to verify that the following capabilities are available:

- List saved plot sets (definitions or data)
- Retrieve saved plot data sets
- Display plots
- Delete saved plot sets

3.1.4 Hardcopy User Interface Test Description The Hardcopy User Interface is used to document the graphical description of model processes. Processes can be plotted individually or all processes in a model can be plotted. Test Procedure 3.4.4 is designed to verify that the following capabilities are available:

- User can specify paper size
- User can plot individual Processes

- User can plot all model Processes

3.1.5 Library User Interface Test Description The Library User Interface is used to access the four functions of the Library Function. The Library Function is used to check models into and out of a user's library or the system library, and to merge parts of libraries into and out of a user's data base. Test procedure 3.4.5 is designed to verify that the following capabilities are available:

- List the models in a library.
- List the contents of a specific library.
- Check a model out of a library.
- Merge in a model without conflicts.
- Resolve naming conflicts in a model to be merged into a data base.
- List entities in a data base.
- Select entities to be merged out.
- Check a model into a library
- Delete a model from a library.

## 3.2 Test Equipment

Installation testing will be performed on the version of AISIM which is to be rehosted on the MITRE Corporation IBM 3031 computer system. This testing will take place after rehost at the MITRE facility. MITRE must provide the following equipment for this testing:

- 1 HP2647A graphics terminal
- 1 HP2631G printer plotter connected to terminal with HPIB interface
- connection to computer system

## 3.3 Test Conditions

All input data will be entered by the tester in interactive mode. The specific inputs are listed in Section 3.4. No other test conditions apply to this test plan.

## 3.4 Test Procedures

The test procedures are presented in tabular form. Each includes a list of the functions to be performed, user commands and responses to perform the function, expected results of each command and function, and an area for recording the test results.

3.4.1 Design User Interface Test Procedure This test exercises the commands available in the Design User Interface. The test is structured such that results of functions which are not directly observable are verified as part of the test. For example, when a node is placed in the architecture with predefined Resource attributes, the presence of these attributes is verified later in the test.

| FUNCTION/COMMANDS | ADDITIONAL INPUTS/ EXPECTED RESULTS | TEST RESULTS |
|---|---|---|
| 1. Initiate an AISIM session | | |
| EX AISIM | AISIM Executive Messages are displayed. AISIM READY prompt is displayed. displayed. | |
| 2. Invoke Design User Interface | | |
| d p(intgtest) | DUI messages displayed. Copy data base prompt displayed. User enters "yes". Data base is copied. "**" prompt is displayed. | |
| 3. Edit one of each of the following entity types. | | |
| e r,restest,new<br>e i,itemtest,new<br>e t,tabitest,new<br>e a,acttest,new<br>e v,vartest,new<br>e c,contest,new<br>e q,quetest,new<br>e l,loadtest,new | Appropriate entity form is displayed. User enters random data into forms and enters them. "*" prompt is displayed. | |
| 4. e s,scentest | Message is displayed indicating that "scentest" does not exist and the user is asked if (s)he wishes to create it. User enters "yes" and test proceeds as in 3 above. | |
| 5. e, p,proctest,new | Process form is displayed. User enters random data into form and enters it. "#" prompt is displayed. | |
| 6. menu | The menu of Primitive symbols is displayed. | |
| 7. Place one of each Primitive type. | | |

| | |
|---|---|
| p action<br>p alloc<br>p assign<br>p branch<br>p call<br>p create<br>p compare<br>p dealloc<br>p destroy<br>p entry<br>p eval<br>p file<br>p find<br>p lock<br>p loop<br>p prob<br>p reset<br>p remove<br>p resume<br>p send<br>p suspend<br>p test<br>p trace<br>p unlock<br>p wait | Each Primitive form is displayed. User enters miscellaneous data and enters form. "#" prompt is displayed. User issues next PLACE command. |

8. Change selected Process Primitives.

| | |
|---|---|
| c 1<br>c 2<br>c 3<br>c 4<br>c 5<br>c 6 | Change primitives shown on first page of Process. In response to change command, specified Primitive form is displayed with existing information. User changes information as desired and enters form. System responds by redrawing Primitive and displaying "#" prompt. "#" prompt. |

9. Display portions of Process moving both up and down.

| | |
|---|---|
| bottom<br>c 13<br>c 5<br>top | User enters combination of movement commands. After each command, screen is erased and new portion of Process is displayed. "#" prompt is redisplayed. |

10. Delete selected

Process Primitives.

| | |
|---|---|
| del 5<br>del 2,2<br>del 13 | Randomly select Primitives to be deleted. In response, the selected Primitive and those displayed below it are erased. Primitives below one selected are redrawn. "#" prompt displayed. Note that Primitives may only be deleted if presently shown on the screen. |

11. Exit the Process Editor.

| | |
|---|---|
| end | Screen is cleared and "*" prompt is displayed. |

12. Copy one of each entity type.

| | |
|---|---|
| copy r,restest,res2<br>copy i,itemtest,itm2<br>copy t,tabltest,tabl2<br>copy a,acttest,act2<br>copy v,vartest,var2<br>copy c,contest,con2<br>copy q,quetest,q2<br>copy l,loadtest,load2<br>copy s,scentest,scen2<br>copy p,proctest,proc2 | User enters list of commands, one at a time. After each command, "*" prompt is redisplayed. |

13. Verify that Copy commands worked.

| | |
|---|---|
| list r<br>list i<br>list t<br>list a<br>list v<br>list c<br>list q<br>list l<br>list s<br>list p | Appropriate entity list (original entities and copies). "*" prompt is redisplayed after each command. |

14. Delete original of each entity type.

| | |
|---|---|
| del r,restest<br>del i,itemtest<br>del t,tabltest | After each command, system performs processing and returns "*" prompt. |

```
del a,acttest
del v,vartest
del c,contest
del q,quetest
del l,loadtest
del s,scentest
del p,proctest
```

15. List each entity type.

```
list r
list i
list t
list a
list v
list c
list q
list l
list s
list p
```

Appropriate entity list (copied entities only). "**" prompt redisplayed after each command.

16. Save the data base.

```
save
```

Console beeps 5 times. "*" prompt is returned.

17. Delete existing Resources and verify. Create new Resource.

```
del r,*
list r
e r,archtest
```

Processing performed and "*" prompt returned. User lists Resources to verify that all are deleted. System provides null list and returns "*" prompt. User enters new Resource, filling in Resource form and filling attribute form with miscellaneous information.

18. Edit an architecture.

```
a
```

Screen is cleared. Architecture grid is drawn. "#" prompt is provided.

19. Definition of symbol/ Resource prototypes for various symbols.

```
def sqr,archtest
def bus
def crd
def dia
def drm
def dsk
def iod
def pig
def prp
def ptr
def rec
def tap
def tri
def tty
```

After processing each command. The system returns a "#" prompt. The user should note that the form displayed is the same that was entered for the Resource archtest. After the user enters each command, the system displays the form for the specified symbol. The user should enter miscellaneous information into this form, being sure to enter "YES" in the "attributes field". After entering this form, an attribute form will be displayed. The user enters miscellaneous information into this form and enters it. The "#" prompt is returned.

20. Placement of symbols and connections.

```
p sqr,AA,20,20
p tri,BB,40,40
p iod,CC,60,60
con AA,CC,con1
con AA,BB,con2.F
```

Starting with these commands, create an architecture.

21. Move a symbol within the architecture.

```
move AA,30,30
```

Symbol is erased and redrawn at new location. Connection is replaced. "#" prompt is returned.

22. Redraw a connection within the architecture.

```
recon con3.F
```

Connection is erased and graphics cursor is displayed to user. Enter the connection again.

23. Window view space over work space.

| | |
|---|---|
| win d,20<br>win u,10<br>win r,30<br>win l,20<br>win r,20,u,10<br>win l,10,d,30 | Issue various window commands as shown at left. After each command screen is erased and redrawn at new location. "#" prompt is returned. |

24. Manipulate LPT functions.

| | |
|---|---|
| list lpt | LPT is listed in alpha memory of terminal. LPT should represent pointwise connection of adjacent nodes. "#" prompt is returned. |
| list path,AA,BB<br>list path,BB,CC | Should provide path only when adjacent nodes are specified. System responds with "NO SUCH PATH" for nonadjacent nodes. "#" prompt is displayed. |
| def path,BB,CC,con2.F,con1 | User defines a path through several nodes. System processes command and displays "#" prompt. |
| list path,BB,CC | "From node" and "To node" should be the same nodes as used in processing command. Path just entered and all subpaths are displayed. "#" prompt is returned. |
| list lpt | LPT as above is listed but with defined path added. "#" prompt returned. |
| del,path,BB,CC | Use "from node" and "to node" as above. System processes command. Returns prompt. |
| list path,BB,CC | Use "from node" and "to node" as above. System responds with "NO SUCH PATH". Returns "#" prompt. prompt. |
| list lpt | LPT is listed as in last list lpt command execpt |

| | |
|---|---|
| | deleted path is gone. "#" prompt is displayed. |
| 25. Change node and connection parameters. | |
| chg name,CC,XX | Node name is changed on screen. "#" prompt returned. |
| list lpt | Note change to new node name in LPT. "#" prompt returned after listing of LPT. |
| chg size,BB,4<br>list lpt<br>chg type,AA.tty<br>list lpt | Appropriate changes made. After each command, list LPT and verify no change to LPT. "#" prompt displayed after each command in this sequence. |
| chg name,Conl,Conx<br>list lpt | Connection name is changed. List LPT to verify correct LPT change. "#" displayed after each command. |
| 26. Save data base while in architecture. | |
| save | Console beeps 5 times. "#" prompt displayed. |
| 27. End architecture session. | |
| end | Screen is cleared. LPT message prompts are output. "#" prompt displayed. |
| 28. Verify LPT algorithm operation. | |
| info | Messages output describing LPT algorithms. "#" prompt returned. |
| end | No LPT processing done. "*" prompt displayed. User should reenter architecture, list lpt, and verify that no change has occurred. User then ends architecture |

| | | |
|---|---|---|
| | | session again and uses next input as response to LPT generator prompt. |
| | a | LPT algorithm A operates. Control is passed to DUI. "*" prompt displayed. User should reenter architecture, view LPT with "list lpt" and verify against the architecture. User then returns to DUI session, enters architec-design editor, and receives LPT messages again. |
| | b | LPT algorithm B operates. Same prompts and sequences should be reported as in previous step. |
| | c | LPT algorithm C operates. Same as previous steps except upon reentering DUI, user performs following commands. |
| 29. | Verify architecture nodes are represented in list of Resources. | |
| | list r | List of Resources is displayed. User verifies presence of all architecture node and channel Resources, including .A and .B Resources for .F connections used in architecture. |
| | e r,AA (representing tty in architecture) | Resource forms presented. User verifies presence of attributes as specified in Step 19. Repeat for triangle symbol. "*" prompt displayed after entering |
| 30. | Reenter Architecture | |
| | a | Grid redrawn. "#" prompt displayed. |
| 31. | Delete architecture nodes and connections | |

| | |
|---|---|
| del conx<br>del con2.F,BB<br>del * | Use various delete commands as shown at left to verify use of each. Appropriate symbols and connections are deleted. "#" prompt displayed after processing of each command. |
| 32. End architecture | |
| end | Screen cleared. LPT generator prompt messages displayed. "#" prompt returned. |
| 33. End LPT. | |
| end | "*" prompt returned. |
| 34. Save data base while in DUI. | |
| save | Terminal "beeps" 5 times. "*" prompt returned. |
| 35. End DUI. | |
| end | Data base save/no save prompt. User responds yes or no as desired. If no, DUI ended and "AISIM READY prompt is displayed. If yes, terminal "beeps" 5 times and then "AISIM READY" is displayed. displayed. |

3.4.2 Analysis User Interface Test Procedure The analysis test procedure verifies three functions:

1. that a model data base created in a Design session can be translated by the Translate Function,

2. that the translated model can be initialized by the Analysis User Interface, and

3. that the Analysis User Interface commands can be successfully exercised against the initialized model.

| FUNCTION/COMMANDS | ADDITIONAL INPUTS/ EXPECTED RESULTS | TEST RESULTS |
|---|---|---|
| 1. Model Input | | |
| Use Design User Interface | Using the capabilities of the DUI, build a model described in Appendix B. Exit the DUI, saving the model data base, and return to the AISIM Ready level. User may instead wish to use test data base Testdbl provided with the installation tape. This is the same model listed in Appendix B. | |
| 2. Invoke the Analysis User Interface (AUI) | | |
| a p(testdbl) | AUI messages are displayed. User is queried "Yes to proceed-No to abort". User enters "Yes". Translation of model data base is performed. Model initialization takes place. Prompt issued "NO ERRORS DETECTED IN MODEL TRANSLATION YOU MAY NOW ENTER COMMANDS". "#" prompt is also displayed. | |
| 3. List each entity type. | | |
| l c<br>l r<br>l p<br>l v<br>l q<br>l i | Appropriate list of entities is displayed and "#" prompt returned after each command. Check lists against Appendix B. | |
| 4. Define Plots-user selects entity names to plot | | |
| def r,resource name<br>def q,queue name<br>def u,variable name<br>def p,process name<br>def i,item name | An attribute form for the selected entity type is displayed. Testor selects attribute and enters form. A statistic form is displayed. User selects statistic and enters form. | |

| | |
|---|---|
| | # prompt is displayed. This step can be repeated to test various combinations. |
| 5. Set a breakpoint | |
| set r,blb2 | Appropriate entity attribute and statistic selection forms are displayed. User enters forms and receives "#" prompt. |
| 6. Initiate the simulation. | |
| go | Simulation begins. When breakpoint reached, simulation is halted and user is allowed to enter commands. "#" prompt is displayed. |
| 7. Display selected entity statistics | |
| iv r,blb2<br>iv r,h2<br>iv i,msg<br>iv stream | All statistics associated with specified entity are displayed. |
| 8. Edit one of each legal entity type | |
| edit v,v.cs,.001<br>edit stream,load,7 | The screen is cleared and the # prompt is returned. |
| 9. Continue the simulation | |
| go | Simulation continues until terminated. Message indicating normal termination is displayed. User is allowed to enter commands. # prompt displayed. |
| 10. Display the plots in various combinations. | |
| plot | Menu of plots is displayed. User selects desired plots. Plots generated # prompt displayed. User should repeat for vaious plots. |

11. Save plot data and definitions

| | |
|---|---|
| save def,defset1, definitions<br>save plot,plotset1, run1 results | Definitions & plots are saved. Screen is cleared after each command and "#" prompt is displayed. |

12. List the saved plot sets and definition sets.

| | |
|---|---|
| l plot<br>l def | The names of each Plot set and definition set and their descriptions are displayed. A "#" prompt is displayed. |

13. Exit Analysis User Interface

| | |
|---|---|
| end | Clear screen and AISIM Ready prompt. |

14. Reenter AUI

| | |
|---|---|
| a p(data base name) | See step 2. |

15. Edit selected constants and variables to change simulation results.

| | |
|---|---|
| edit v, select variable, select value<br>edit c, select constant, select value | See Step 8. |

16. Set plot definitions

| | |
|---|---|
| get def,defset1 | Clear screen and # prompt returned. |

17. Set a breakpoint

| | |
|---|---|
| set r,b3b4 | See step 5. |

18. Cancel the breakpoint

| | |
|---|---|
| can | Breakpoint is cancelled. Clear screen followed by new "#" prompt. |

19. Set infinite resources

| | |
|---|---|
| infres | Infinite resources set. Clear screen followed by new "#" prompt. |

20. Execute simulation

| | |
|---|---|
| go | Simulation executes. Normal termination messages displayed. "#" prompt displayed. |

21. Save plot results

| | |
|---|---|
| save plot,plotset2,run 2 results | Plot results saved. "#" prompt displayed. |

22. Exit AUI

| | |
|---|---|
| end | See step 13 |

3.4.3 Replot User Interface Test Procedure The Replot User Interface Test Procedure will be used to test all Replot commands and all capabilities of the Replot function as described in section 3.1.3

| FUNCTION/COMMANDS | ADDITIONAL INPUTS/ EXPECTED RESULTS | TEST RESULTS |
|---|---|---|
| 1. Invoke the Replot User Interface | | |
| replot p(project name) | Replot messages and prompt to continue followed by "$" prompt. | |
| 2. List set types | | |
| l def<br>l plot<br>l title | l def lists all plot definition sets, l plot lists all plot data sets, l title lists current plot titles--none at this point. "$" prompt displayed. | |
| 3. Retrieve each plot data set selecting plots from each set. | | |
| get plot,plotset1<br>get plot,plotset2 | Plot titles in each set are displayed. User is allowed to select specific plots which are put in the current set of plots. | |
| 4. List titles | | |
| l title | List of titles of current plots. "$" prompt displayed. | |
| 5. Display the plots in various combinations | | |
| plot | Current plot titles are displayed for user selection. After selection plot is generated and "$" prompt is displayed. | |
| 6. Clear the current plots. | | |
| clear | Current plot information is purged. "$" prompt is displayed. | |
| 7. Repeat steps 3-5 selecting new plots | See steps 3-5 | |
| 8. Delete a plot set | | |

| | |
|---|---|
| delete plot,plotset1 | Plotset is deleted. "$" prompt is displayed. |

9. Delete a definition set

| | |
|---|---|
| delete def,defset1 | Definition set is deleted. "$" prompt is displayed. |

10. List sets

| | |
|---|---|
| l def<br>l plot | List of remaining sets of each type are displayed followed by $ prompt. |

11. Exit the Replot User Interface.

| | |
|---|---|
| end | Screen is cleared. AISIM READY prompt is displayed. |

3.4.4 Hardcopy User Interface Test Procedure The Hardcopy User Interface verifies that the data interface between the AISIM system and the terminal is operating properly. It also verifies the actual operation of the AISIM software. It exercises the functions described in section 3.1.4.

| FUNCTION/COMMANDS | ADDITIONAL INPUTS/ EXPECTED RESULTS | TEST RESULTS |
|---|---|---|
| 1. Invoke the Hardcopy User Interface - plot single Process. | | |
| hcopy p(project name) | Hardcopy messages and prompt to continue. User is then prompted whether to plot all Processes or not. User enters no. User is prompted for paper size. User enters paper size. User prompted to position paper. User positions paper. User prompted for Processes to plot one at a time. Processes plotted. Return to AISIM READY level when user indicates desire to exit. | |
| 2. Invoke the HUI-plot all Processes. | | |
| hcopy p(project name) | Hardcopy messages and prompt to continue. User is then prompted whether to plot all Processes or not. User enters yes. User is prompted for paper size. User enters paper size. User prompted to position paper. User positions paper. Processes plotted. Return to AISIM Ready level. | |

3.4.5 Library User Interface Test Procedure The four Library subfunctions are Checkin, Checkout, Mergein, and Mergeout. In the following test procedure all four of these functions are tested. Test steps associated with the testing of Checkout are proceeded by an A or AA (i.e. A1, A2, A3, etc.). Mergein is preceeded with a B (i.e. B1, B2, etc.). Likewize Mergeout and Checkin are preceeded with C and D respectively.

| FUNCTION/COMMANDS | ADDITIONAL INPUTS/ EXPECTED RESULTS | TEST RESULTS |
|---|---|---|
| Access the Library Functions | | |
| Library | Enter command at the AISIM Ready level. System responds with LIBRARY READY. | |
| A 1 Invoke the Checkout Function on the system library. | | |
| co l(system) b(testbuf) | System displays verification messages and prompt. User types yes. "You may now extract models from the library" is displayed as well as "*" prompt. | |
| A 2 List all models in the library. | | |
| l * | All models in system library are listed. "*" prompt is displayed. | |
| A 3 List the contents of a specific model. | | |
| l commun-a | For every legal entity type, all the entities of that type are displayed followed by "do you wish to continue listing the model?" query. User should respond yes until the "*" prompt is displayed after the Processes are listed. | |
| A 4 Flag a model for being Checked out | | |
| ext commun-a | The model is flagged for extraction. "*" prompt displayed. | |
| A 5 Exit the Checkout Function | | |
| end | A message is displayed when the Checkout has been com- | |

| | | |
|---|---|---|
| | | pleted. The user is returned to the LIBRARY Ready level. |
| B 1 | Invoke the Mergein Function using the same buffer with an empty data base. | |
| | mi p(testdb) b(testbuf) i(library) | Verification messages and prompt are displayed. User responds yes. User is asked if (s)he wants to create the project. User responds yes. Messages are displayed indicating no naming conflicts. Mergin operation completes and LIBRARY READY prompt is displayed. |
| B 2 | Invoke the Mergein Function again with naming conflicts. | |
| | mi p(testdb) b(testbuf) | Verification messages and prompt displayed. User responds yes. This time the system tells the user that 7 conflicts were detected and asks if the user wishes to resolve these conflicts. User responds yes. |
| B 3 | Resolve the namaing conflicts. | |
| | (msg) rn message<br>(chiio) rp chiio<br>(control) ig<br>(esr-call) rn call-esr<br>(ihandler) rp<br>(req-i/o) ig<br>(router) ig | User responds to "option:" prompts and verification is given. Mergein operation is begun as soon as all naming conflicts are resolved. |
| C 1 | Invoke the Mergeout Function using the same buffer and data base | |
| | mo p(testdb) b(testbuf) | Verificaton messages and prompt displayed. User enters yes. User prompted |

| | | |
|---|---|---|
| | | to reuse buffer. User enters yes. "**" prompt is displayed. |
| C 2 | List entities in the data base. | |
| | i item<br>i var<br>i process | Entities of the specified types are displayed. "**" prompt is displayed. |
| C 3 | Select entities to be merged out. | |
| | s i,message<br>s p,chiio | Selected entities are flagged to be merged out. |
| C 4 | Exit the Mergeout Function | |
| | end | The Mergeout operation is performed. The user is returned to the LIBRARY READY level. |
| D 1 | Invoke the Checkin Function using the same buffer and an empty library. | |
| | ci l(testlib) b(testbuf) | Verification messages and prompt displayed. User enters yes. User is asked if the library should be created. User enters yes. |
| D 2 | Describe the model to be checked in. | |
| | (name) MODEL<br><number><br><description> | The user is prompted for a name, a document reference number and a description. User is asked if library update is to be permanent. User enters yes. |
| AA 1 | Invoke the Checkout Function using the same buffer and library. | |
| | co l(testlib) b(testbuf) | Verification messages and prompt displayed. User |

| | | |
|---|---|---|
| | | enters yes. "*" prompt displayed. |
| AA 2 | List all models in the data base. | |
| | l * | Names of models is the data base are listed. |
| AA 3 | List the contents of the previously checked in model. | |
| | l model | The entities of model are listed as in A 3 above. |
| AA 4 | Delete the model from the library. | |
| | d model | The model is deleted. "*" prompt is displayed. |
| AA 5 | Verify the deletion with the list command. | |
| | l * | Existing models are listed. |
| AA 6 | Exit the Checkout Function. | |
| | end | User is returned to the LIBRARY READY level. |
| | Exit the Library level | |
| | end | User is returned to the AISIM READY level. |

## 4. ACCEPTANCE TESTING

Acceptance testing consists of verifying all the operational requirements of the system. Acceptance testing for AISIM consists of the foregoing Installation Tests as well as the tests described in the following paragraphs. The combination of these tests provides for verification of user interface software (Installation Test Procedures), exercise of all Library, Hardcopy, Replot, and Design functions (Installation Test Procedures), verification of the Translator (Installation Tests and Acceptance Test) and verification of the AISIM simulator (Acceptance Tests). As can be seen the Installation Tests cover all system capabilities except the AISIM simulator. Its capabilities are fully exercised by the five Acceptance Tests. Table 1 shows a cross reference of Acceptance Tests and functional requirements of the simulator tested by each test.

TABLE 1

ACCEPTANCE TESTING

FUNCTIONAL REQUIREMENTS CROSS-REFERENCE

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Random Number Seed | | | | | X |
| Random Sampling by Variable Dist. | | | | X | X |
| Arithmetic Constructs | X | | | X | X |
| Parameter Passing | X | X | | X | X |
| Terminal Interface - Simulate for Multiple Periods | | | | X | |
| Statistical Summary Percision | | | | X | |
| Queue Manipulation | | | X | X | |
| Resource Logic | | X | X | X | |
| Keywords | | X | | X | |
| Protocol Processes | | | | X | |
| Resource Manipulation | | X | | X | |
| Process Triggering | X | | X | X | X |

## 4.1 Acceptance Testing Procedures

Each of the five Acceptance Tests are executed using the same procedure. The following paragraph describes this procedure and all associated information necessary to perform the tests.

4.1.1 Locate Acceptance Tests Data Bases Included on the delivered system tape are five files labeled TESTDBA.DBF, TESTDBB.DBF, TESTDBC.DBF, TESTDBD.DBF, and TESTDBE.DBF. Each of these files are model data bases that contain model definitions which when simulated exercise a different portion of the simulator. The data bases TESTDBA through TESTDBE are used in tests 1 through 5 respectively. When the system tape was read onto disk, these files were read onto the user ID specified in the JCL job steps.

4.1.2 Verify Test Data Bases To insure that no errors were introduced into the test data bases during tape reads, etc. during rehost, each data base should be verified. This is done by entering AISIM and executing the Analyze command specifying the test data base to be verified. For example to verify test data base TESTDBA.DBF the testor should enter:

```
a  p(testdba)
```

In response the system will issue Analysis User Interface messages and prompt for a continuation indication. After the user enters "yes", the Translator will be called and the test data base will be translated and initialized. The system should issue the message:

```
NO ERRORS DETECTED IN MODEL TRANSLATION
YOU MAY NOW ENTER COMMANDS
```

If errors are detected, the test data base is not usable. If the prompt is issued as shown above the user should also verify all values within the model. This is done by exiting the Analyze function and obtaining a listing of the report.data file for that data base. For example, to verify the values for TESTDBA.DBF the user should list the testdba.report.data file. The user should then do a line by line comparison of this listing to the listing provided in Appendix C for the given data base. If any difference is detected, the test data base is unusable. This validation step should be repeated against each test data base.

4.1.3 Perform Test Enter the AISIM system and execute the Analyze command specifying the test data base to be executed. For example to execute test 1, test data base TESTDBA.DBF should be executed by issuing the analyze command as follows:

```
a  p(testdba)
```

For tests 2-5, this command would be altered by inserting testdbb

through testdbe respectively. When the prompt:

```
NO ERRORS DETECTED IN MODEL TRANSLATION
YOU MAY NOW ENTER COMMANDS
```

is displayed, the user should enter "go". This will execute the simulation and the following prompt should be displayed:

```
SIMULATION ENDED - NORMAL TERMINATION
YOU MAY NOW ENTER COMMANDS
```

Any other response indicates an error. The tester should then list the "test".report.data file for the test just executed where "test" is replaced by the name of the test data base just executed. For example, to obtain the report for Test 1 which uses TESTDBA.DBF the file to be listed is testdba.report.data. The tester then performs a line by line comparison of the listing obtained in this way with the corresponding test results listing provided in Appendix D. Any differences indicate an error. This step is repeated for each test data base.

# APPENDIX A

## JCL FILES FOR THE TAPES

```
**** TSO FOREGROUND HARDCOPY ****
DSNAME=TF01503.AIS.TAPE.CNTL                    (CR+EXC  )

//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000010
//SYSPRINT DD SYSOUT=A                                                 00000020
//RESERVE DD DSN=TF08507.AIS.LIBUTIL.LOAD,                             00000030
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00000040
//         SPACE=(TRK,(100,20,2),RLSE),UNIT=DISK,                      00000050
//          DCB=(RECFM=U,LRECL=96,BLKSIZE=19069)                       00000060
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                   00000070
//           LABEL=(1,NL),DISP=(OLD,PASS,KEEP),                        00000080
//          DCB=(RECFM=U,LRECL=96,BLKSIZE=19069,DEN=3)                 00000090
//SYSIN DD       *                                                     00000100
        COPY OUTDD=RESERVE                                           00000110
             INDD=INPDS                                              00000120
/*                                                                   00000130
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000140
//SYSPRINT DD SYSOUT=A                                                 00000150
//RESERVE DD DSN=TF08507.AIS.SYSTEM.LOAD,                              00000160
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00000170
//         SPACE=(TRK,(100,20,2),RLSE),UNIT=DISK,                      00000180
//          DCB=(RECFM=U,LRECL=96,BLKSIZE=19069)                       00000190
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                   00000200
//           LABEL=(2,NL),DISP=(OLD,PASS,KEEP),                        00000210
//          DCB=(RECFM=U,LRECL=96,BLKSIZE=19069,DEN=3)                 00000220
//SYSIN DD       *                                                     00000230
        COPY OUTDD=RESERVE                                           00000240
             INDD=INPDS                                              00000250
/*                                                                   00000260
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000270
//SYSPRINT DD SYSOUT=A                                                 00000280
//RESERVE DD DSN=TF08507.AIS.CONTRL.CLIST,                             00000290
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00000300
//         SPACE=(TRK,(20,5,10),RLSE),UNIT=DISK,                       00000310
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680)                      00000320
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                   00000330
//           LABEL=(3,NL),DISP=(OLD,PASS,KEEP),                        00000340
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)                00000350
//SYSIN DD       *                                                     00000360
        COPY OUTDD=RESERVE                                           00000370
             INDD=INPDS                                              00000380
/*                                                                   00000390
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000400
//SYSPRINT DD SYSOUT=A                                                 00000410
//RESERVE DD DSN=TF08507.AIS.USER.CLIST,                               00000420
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00000430
//         SPACE=(TRK,(5,1,5),RLSE),UNIT=DISK,                         00000440
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680)                      00000450
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                   00000460
//           LABEL=(4,NL),DISP=(OLD,PASS,KEEP),                        00000470
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)                00000480
//SYSIN DD       *                                                     00000490
        COPY OUTDD=RESERVE                                           00000500
             INDD=INPDS                                              00000510
/*                                                                   00000520
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000530
//SYSPRINT DD SYSOUT=A                                                 00000540
//RESERVE DD DSN=TF08507.AIS.MESSAGES.TEXT,                            00000550
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00000560
```

```
//          SPACE=(TRK,(5,1,10),RLSE),UNIT=DISK,                    00000570
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160)                  00000580
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000590
//            LABEL=(5,NL),DISP=(OLD,PASS,KEEP),                    00000600
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160,DEN=3)            00000610
//SYSIN DD      *                                                   00000620
        COPY OUTDD=RESERVE                                          00000630
             INDD=INPDS                                             00000640
/*                                                                  00000650
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                               00000660
//SYSPRINT DD SYSOUT=A                                              00000670
//RESERVE DD DSN=TF08507.AIS.VERSION.TEXT,                          00000680
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                  00000690
//          SPACE=(TRK,(5,1,5),RLSE),UNIT=DISK,                     00000700
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160)                  00000710
//INPDS DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                00000720
//            LABEL=(6,NL),DISP=(OLD,PASS,KEEP),                    00000730
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160,DEN=3)            00000740
//SYSIN DD      *                                                   00000750
        COPY OUTDD=RESERVE                                          00000760
             INDD=INPDS                                             00000770
/*                                                                  00000780
//  EXEC PGM=IEBGENER                                               00000790
//SYSPRINT DD SYSOUT=A                                              00000800
//SYSIN    DD DUMMY                                                 00000810
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),             00000820
//            LABEL=(7,NL),DISP=(OLD,PASS,KEEP),                    00000830
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)            00000840
//SYSUT2   DD DSN=TF08507.AIS.STARTDB.OBT,                          00000850
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,      00000860
//          SPACE=(TRK,(1,1),RLSE),                                 00000870
//           DCB=(RECFM=VS,LRECL=800,BLKSIZE=800)                   00000880
/*                                                                  00000890
//  EXEC PGM=IEBGENER                                               00000900
//SYSPRINT DD SYSOUT=A                                              00000910
//SYSIN    DD DUMMY                                                 00000920
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),             00000930
//            LABEL=(8,NL),DISP=(OLD,PASS,KEEP),                    00000940
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)            00000950
//SYSUT2   DD DSN=TF08507.AIS.MODEL.STARTDB.OBT,                    00000960
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,      00000970
//          SPACE=(TRK,(1,1),RLSE),                                 00000980
//           DCB=(RECFM=VS,LRECL=800,BLKSIZE=800)                   00000990
/*                                                                  00001000
//  EXEC PGM=IEBGENER                                               00001010
//SYSPRINT DD SYSOUT=A                                              00001020
//SYSIN    DD DUMMY                                                 00001030
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),             00001040
//            LABEL=(9,NL),DISP=(OLD,PASS,KEEP),                    00001050
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)            00001060
//SYSUT2   DD DSN=TF08507.AIS.PLOT.STARTDB.OBT,                     00001070
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,      00001080
//          SPACE=(TRK,(1,1),RLSE),                                 00001090
//           DCB=(RECFM=VS,LRECL=800,BLKSIZE=800)                   00001100
/*                                                                  00001110
//  EXEC PGM=IEBGENER                                               00001120
//SYSPRINT DD SYSOUT=A                                              00001130
//SYSIN    DD DUMMY                                                 00001140
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),             00001150
//            LABEL=(10,NL),DISP=(OLD,PASS,KEEP),                   00001160
```



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```
//              DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001170
//SYSUT2    DD DSN=TF03507.AIS.PLOT.STARTDB.DBF,                               00001180
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                00001190
//           SPACE=(TRK,(50,10),RLSE),                                         00001200
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                            00001210
/*                                                                            00001220
//  EXEC PGM=IEBGENER                                                         00001230
//SYSPRINT DD SYSOUT=A                                                        00001240
//SYSIN    DD DUMMY                                                           00001250
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                       00001260
//             LABEL=(11,NL) DISP=(OLD,PASS,KEEP),                            00001270
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001280
//SYSUT2   DD DSN=TF03507.AIS.MODEL.STARTDB.DBF,                              00001290
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,               00001300
//           SPACE=(TRK,(50,10),RLSE),                                        00001310
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                           00001320
/*                                                                            00001330
//  EXEC PGM=IEBGENER                                                         00001340
//SYSPRINT DD SYSOUT=A                                                        00001350
//SYSIN    DD DUMMY                                                           00001360
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                       00001370
//             LABEL=(12,NL),DISP=(OLD,PASS,KEEP),                            00001380
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001390
//SYSUT2   DD DSN=TF03507.AIS.PLOT.STARTDB.DBF,                               00001400
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,               00001410
//           SPACE=(TRK,(50,10),RLSE),                                        00001420
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                           00001430
/*                                                                            00001440
//  EXEC PGM=IEBGENER                                                         00001450
//SYSPRINT DD SYSOUT=A                                                        00001460
//SYSIN    DD DUMMY                                                           00001470
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                       00001480
//             LABEL=(13,NL),DISP=(OLD,PASS,KEEP),                            00001490
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001500
//SYSUT2   DD DSN=TF03507.AIS.SYSTEM.LIBRARY.DBF,                             00001510
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,               00001520
//           SPACE=(TRK,(25,10),RLSE),                                        00001530
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                           00001540
/*                                                                            00001550
//  EXEC PGM=IEBGENER                                                         00001560
//SYSPRINT DD SYSOUT=A                                                        00001570
//SYSIN    DD DUMMY                                                           00001580
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                       00001590
//             LABEL=(14,NL),DISP=(OLD,PASS,KEEP),                            00001600
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001610
//SYSUT2   DD DSN=TF03507.TESTDB1.DBF,                                        00001620
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,               00001630
//           SPACE=(TRK,(25,10),RLSE),                                        00001640
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                           00001650
/*                                                                            00001660
//  EXEC PGM=IEBGENER                                                         00001670
//SYSPRINT DD SYSOUT=A                                                        00001680
//SYSIN    DD DUMMY                                                           00001690
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                       00001700
//             LABEL=(15,NL),DISP=(OLD,PASS,KEEP),                            00001710
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                    00001720
//SYSUT2   DD DSN=TF03507.TESTDBA.DBF,                                        00001730
//             UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,               00001740
//           SPACE=(TRK,(25,10),RLSE),                                        00001750
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                           00001760
```

```
/*                                                                    00001770
//  EXEC PGM=IEBGENER                                                 00001780
//SYSPRINT DD SYSOUT=A                                                00001790
//SYSIN    DD DUMMY                                                   00001800
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00001810
//            LABEL=(16,NL),DISP=(OLD,PASS,KEEP),                     00001820
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00001830
//SYSUT2   DD DSN=TF08507.TESTDEB.DBF,                                00001840
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,        00001850
//          SPACE=(TRK,(25,10),RLSE),                                 00001860
//           DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                    00001870
/*                                                                    00001880
//  EXEC PGM=IEBGENER                                                 00001890
//SYSPRINT DD SYSOUT=A                                                00001900
//SYSIN    DD DUMMY                                                   00001910
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00001920
//            LABEL=(17,NL),DISP=(OLD,PASS,KEEP),                     00001930
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00001940
//SYSUT2   DD DSN=TF08507.TESTDEC.DBF,                                00001950
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,        00001960
//          SPACE=(TRK,(25,10),RLSE),                                 00001970
//           DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                    00001980
/*                                                                    00001990
//  EXEC PGM=IEBGENER                                                 00002000
//SYSPRINT DD SYSOUT=A                                                00002010
//SYSIN    DD DUMMY                                                   00002020
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00002030
//            LABEL=(18,NL),DISP=(OLD,PASS,KEEP),                     00002040
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00002050
//SYSUT2   DD DSN=TF08507.TESTDBD.DBF,                                00002060
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,        00002070
//          SPACE=(TRK,(25,10),RLSE),                                 00002080
//           DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                    00002090
/*                                                                    00002100
//  EXEC PGM=IEBGENER                                                 00002110
//SYSPRINT DD SYSOUT=A                                                00002120
//SYSIN    DD DUMMY                                                   00002130
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00002140
//            LABEL=(19,NL),DISP=(OLD,PASS,KEEP),                     00002150
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00002160
//SYSUT2   DD DSN=TF08507.TESTDBE.DBF,                                00002170
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,        00002180
//          SPACE=(TRK,(50,10),RLSE),                                 00002190
//           DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096)                    00002200
/*                                                                    00002210
```

```
**** TSO FOREGROUND HARD COPY ****
DINAME=TF01508 AIS TAPE UNIT                          (CRKEXJCL)

  EXEC PGM=IEBGENER                                                  00000010
 SYSPRINT DD SYSOUT=A                                                00000020
 SYSIN    DD DUMMY                                                   00000030
 SYSUT1   DD UNIT=TAPE,VOL=SER=AISE*2,SPACE=(1,(1,1)),               00000040
/            LABEL=(20,NL),DISP=(OLD,PASS,KEEP),                     00000050
/            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)              00000060
/SYSUT2   DD DSN=TF08507 CRKEXC CNTL,                                00000070
/            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,        00000080
/          SPACE=(TRK,(1,1),RLSE),                                   00000090
/           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                     00000100
/*                                                                   00000110
```

```
**** TSO FOREGROUND HARDCOPY ****
DSNAME=TF01508.AIS.TAPE.CNTL                          (CRKSRC   )

//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),
//            LABEL=(1,NL),DISP=(OLD,PASS,KEEP),
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)
//SYSUT2   DD DSN=TF08507.AIS.DDL.DATA,
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,
//         SPACE=(TRK,(2,2),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
/*
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),
//            LABEL=(2,NL),DISP=(OLD,PASS,KEEP),
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)
//SYSUT2   DD DSN=TF08507.AIS.MODEL.DDL.DATA,
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,
//         SPACE=(TRK,(2,2),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
/*
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),
//            LABEL=(3,NL),DISP=(OLD,PASS,KEEP),
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)
//SYSUT2   DD DSN=TF08507.AIS.PLOT.DDL.DATA,
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,
//         SPACE=(TRK,(1,1),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
/*
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),
//            LABEL=(4,NL),DISP=(OLD,PASS,KEEP),
//            DCB=(RECFM=U,LRECL=0,BLKSIZE=800,DEN=3)
//SYSUT2   DD DSN=TF08507.AIS.KERNEL.ADEGRAPH.DATA,
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,
//         SPACE=(TRK,(2,2),RLSE),
//          DCB=(RECFM=U,LRECL=0,BLKSIZE=800)
/*
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),
//            LABEL=(5,NL),DISP=(OLD,PASS,KEEP),
//            DCB=(RECFM=FB,LRECL=106,BLKSIZE=1060,DEN=3)
//SYSUT2   DD DSN=TF08507.AIS.KERNEL.FORMSPEC.DATA,
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,
//         SPACE=(TRK,(5,5),RLSE),
//          DCB=(RECFM=FB,LRECL=106,BLKSIZE=1060)
/*
//  EXEC PGM=IEBGENER
```

```
//SYSPRINT DD SYSOUT=A                                                  00000570
//SYSIN    DD DUMMY                                                     00000580
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                00000590
//            LABEL=(6,NL),DISP=(OLD,PASS,KEEP),                       00000600
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)               00000610
//SYSUT2   DD DSN=TF08507.AIS.KERNEL.GRAPHICS.DATA,                     00000620
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,         00000630
//          SPACE=(TRK,(3,3),RLSE),                                    00000640
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                      00000650
/*                                                                     00000660
//  EXEC PGM=IEBGENER                                                  00000670
//SYSPRINT DD SYSOUT=A                                                 00000680
//SYSIN    DD DUMMY                                                    00000690
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                00000700
//            LABEL=(7,NL),DISP=(OLD,PASS,KEEP),                       00000710
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)               00000720
//SYSUT2   DD DSN=TF08507.AIS.KERNEL.SYMBOL.DATA,                      00000730
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,         00000740
//          SPACE=(TRK,(1,1),RLSE),                                    00000750
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                      00000760
/*                                                                     00000770
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000780
//SYSPRINT DD SYSOUT=A                                                 00000790
//RESERVE DD DSN=TF08507.AIS.SYSGEN.CLIST,                             00000800
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                     00000810
//          SPACE=(TRK,(10,5,10),RLSE),UNIT=DISK,                      00000820
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680)                     00000830
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                   00000840
//            LABEL=(8,NL),DISP=(OLD,PASS,KEEP),                       00000850
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)               00000860
//SYSIN DD       *                                                     00000870
        COPY OUTDD=RESERVE                                           00000880
             INDD=INPDS                                              00000890
/*                                                                     00000900
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000910
//SYSPRINT DD SYSOUT=A                                                 00000920
//RESERVE DD DSN=TF08507.AIS.SYSGEN.LINK.CNTL,                         00000930
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                     00000940
//          SPACE=(TRK,(5,1,2),RLSE),UNIT=DISK,                        00000950
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)                       00000960
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                   00000970
//            LABEL=(9,NL),DISP=(OLD,PASS,KEEP),                       00000980
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=800,DEN=3)                 00000990
//SYSIN DD       *                                                     00001000
        COPY OUTDD=RESERVE                                           00001010
             INDD=INPDS                                              00001020
/*                                                                     00001030
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00001040
//SYSPRINT DD SYSOUT=A                                                 00001050
//RESERVE DD DSN=TF08507.ADBMS.SLIB.ASM,                               00001060
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                     00001070
//          SPACE=(TRK,(5,5,3),RLSE),UNIT=DISK,                        00001080
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=1680)                      00001090
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                   00001100
//            LABEL=(10,NL),DISP=(OLD,PASS,KEEP),                      00001110
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=1680,DEN=3)                00001120
//SYSIN DD       *                                                     00001130
        COPY OUTDD=RESERVE                                           00001140
             INDD=INPDS                                              00001150
/*                                                                     00001160
```

```
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001170
//SYSPRINT DD SYSOUT=A                                                  00001180
//RESERVE DD DSN=TF08507.AIS.IGLIB.ASM,                                 00001190
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00001200
//         SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                          00001210
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=4160)                        00001220
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001230
//           LABEL=(11,NL),DISP=(OLD,PASS,KEEP),                       00001240
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=4160,DEN=3)                  00001250
//SYSIN DD     *                                                        00001260
        COPY OUTDD=RESERVE                                              00001270
             INDD=INPDS                                                 00001280
/*                                                                      00001290
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001300
//SYSPRINT DD SYSOUT=A                                                  00001310
//RESERVE DD DSN=TF08507.ADBMS.OBLIB.FORT,                              00001320
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00001330
//         SPACE=(TRK,(30,10,20),RLSE),UNIT=DISK,                       00001340
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360)                        00001350
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001360
//           LABEL=(12,NL),DISP=(OLD,PASS,KEEP),                       00001370
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360,DEN=3)                  00001380
//SYSIN DD     *                                                        00001390
        COPY OUTDD=RESERVE                                              00001400
             INDD=INPDS                                                 00001410
/*                                                                      00001420
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001430
//SYSPRINT DD SYSOUT=A                                                  00001440
//RESERVE DD DSN=TF08507.ADBMS.FLIB.FORT,                               00001450
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00001460
//         SPACE=(TRK,(5,5,3),RLSE),UNIT=DISK,                          00001470
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360)                        00001480
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001490
//           LABEL=(13,NL),DISP=(OLD,PASS,KEEP),                       00001500
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360,DEN=3)                  00001510
//SYSIN DD     *                                                        00001520
        COPY OUTDD=RESERVE                                              00001530
             INDD=INPDS                                                 00001540
/*                                                                      00001550
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001560
//SYSPRINT DD SYSOUT=A                                                  00001570
//RESERVE DD DSN=TF08507.AIS.ADEOBL.FORT,                               00001580
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00001590
//         SPACE=(TRK,(10,5,7),RLSE),UNIT=DISK,                         00001600
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00001610
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001620
//           LABEL=(14,NL),DISP=(OLD,PASS,KEEP),                       00001630
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00001640
//SYSIN DD     *                                                        00001650
        COPY OUTDD=RESERVE                                              00001660
             INDD=INPDS                                                 00001670
/*                                                                      00001680
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001690
//SYSPRINT DD SYSOUT=A                                                  00001700
//RESERVE DD DSN=TF08507.AIS.ADELIB.FORT,                               00001710
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00001720
//         SPACE=(TRK,(60,10,15),RLSE),UNIT=DISK,                       00001730
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00001740
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001750
//           LABEL=(15,NL),DISP=(OLD,PASS,KEEP),                       00001760
```

```
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00001770
//SYSIN DD      *                                                       00001780
        COPY OUTDD=RESERVE                                              00001790
             INDD=INPDS                                                 00001800
/*                                                                      00001810
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001820
//SYSPRINT DD SYSOUT=A                                                  00001830
//RESERVE DD DSN=TF08507.AIS.ANLOBLIB.FORT,                             00001840
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00001850
//          SPACE=(TRK,(10,5,6),RLSE),UNIT=DISK,                        00001860
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00001870
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001880
//            LABEL=(16,NL),DISP=(OLD,PASS,KEEP),                       00001890
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00001900
//SYSIN DD      *                                                       00001910
        COPY OUTDD=RESERVE                                              00001920
             INDD=INPDS                                                 00001930
/*                                                                      00001940
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001950
//SYSPRINT DD SYSOUT=A                                                  00001960
//RESERVE DD DSN=TF08507.AIS.AUILIB.FORT,                               00001970
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00001980
//          SPACE=(TRK,(35,5,3),RLSE),UNIT=DISK,                        00001990
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                        00002000
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00002010
//            LABEL=(17,NL),DISP=(OLD,PASS,KEEP),                       00002020
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00002030
//SYSIN DD      *                                                       00002040
        COPY OUTDD=RESERVE                                              00002050
             INDD=INPDS                                                 00002060
/*                                                                      00002070
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002080
//SYSPRINT DD SYSOUT=A                                                  00002090
//RESERVE DD DSN=TF08507.AIS.CLILIB.FORT,                               00002100
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00002110
//          SPACE=(TRK,(10,5,8),RLSE),UNIT=DISK,                        00002120
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00002130
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00002140
//            LABEL=(18,NL),DISP=(OLD,PASS,KEEP),                       00002150
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00002160
//SYSIN DD      *                                                       00002170
        COPY OUTDD=RESERVE                                              00002180
             INDD=INPDS                                                 00002190
/*                                                                      00002200
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002210
//SYSPRINT DD SYSOUT=A                                                  00002220
//RESERVE DD DSN=TF08507.AIS.COXLAT.FORT,                               00002230
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00002240
//          SPACE=(TRK,(5,5,3),RLSE),UNIT=DISK,                         00002250
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                        00002260
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00002270
//            LABEL=(19,NL),DISP=(OLD,PASS,KEEP),                       00002280
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00002290
//SYSIN DD      *                                                       00002300
        COPY OUTDD=RESERVE                                              00002310
             INDD=INPDS                                                 00002320
/*                                                                      00002330
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002340
//SYSPRINT DD SYSOUT=A                                                  00002350
//RESERVE DD DSN=TF08507.AIS.DBDLIB.FORT,                               00002360
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//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                    00002370
//          SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                       00002380
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                     00002390
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002400
//           LABEL=(20,NL),DISP=(OLD,PASS,KEEP),                      00002410
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00002420
//SYSIN DD      *                                                     00002430
        COPY OUTDD=RESERVE                                          00002440
             INDD=INPDS                                             00002450
/*                                                                  00002460
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                               00002470
//SYSPRINT DD SYSOUT=A                                              00002480
//RESERVE DD DSN=TF03507.AIS.OBLIB.FORT,                            00002490
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                  00002500
//          SPACE=(TRK,(25,5,15),RLSE),UNIT=DISK,                   00002510
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                   00002520
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002530
//           LABEL=(21,NL),DISP=(OLD,PASS,KEEP),                    00002540
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)              00002550
//SYSIN DD      *                                                   00002560
        COPY OUTDD=RESERVE                                          00002570
             INDD=INPDS                                             00002580
/*                                                                  00002590
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                               00002600
//SYSPRINT DD SYSOUT=A                                              00002610
//RESERVE DD DSN=TF03507.AIS.OUILIB.FORT,                           00002620
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                  00002630
//          SPACE=(TRK,(15,5,5),RLSE),UNIT=DISK,                    00002640
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                    00002650
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002660
//           LABEL=(22,NL),DISP=(OLD,PASS,KEEP),                    00002670
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)               00002680
//SYSIN DD      *                                                   00002690
        COPY OUTDD=RESERVE                                          00002700
             INDD=INPDS                                             00002710
/*                                                                  00002720
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                               00002730
//SYSPRINT DD SYSOUT=A                                              00002740
//RESERVE DD DSN=TF03507.AIS.FAST.FORT,                             00002750
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                  00002760
//          SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                     00002770
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                   00002780
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002790
//           LABEL=(23,NL),DISP=(OLD,PASS,KEEP),                    00002800
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE-6160,DEN=3)              00002810
//SYSIN DD      *                                                   00002820
        COPY OUTDD=RESERVE                                          00002830
             INDD=INPDS                                             00002840
/*                                                                  00002850
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                               00002860
//SYSPRINT DD SYSOUT=A                                              00002870
//RESERVE DD DSN=TF03507.AIS.HCLIB.FORT,                            00002880
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                  00002890
//          SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                     00002900
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                   00002910
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002920
//           LABEL=(24,NL),DISP=(OLD,PASS,KEEP),                    00002930
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)              00002940
//SYSIN DD      *                                                   00002950
        COPY OUTDD=RESERVE                                          00002960
```

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            INDD=INPDS                                                  00002970
*                                                                       00002980
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002990
  SYSPRINT DD SYSOUT=A                                                  00003000
//RESERVE DD DSN=TF08507.AIS.HPLIB.FORT,                                00003010
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00003020
//         SPACE=(TRK,(15,5,20),RLSE),UNIT=DISK,                        00003030
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00003040
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00003050
//           LABEL=(25,NL),DISP=(OLD,PASS,KEEP),                        00003060
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00003070
//SYSIN DD      *                                                       00003080
        COPY OUTDD=RESERVE                                              00003090
             INDD=INPDS                                                 00003100
/*                                                                      00003110
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00003120
//SYSPRINT DD SYSOUT=A                                                  00003130
//RESERVE DD DSN=TF08507.AIS.INITDB.FORT,                               00003140
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00003150
//         SPACE=(TRK,(10,5,3),RLSE),UNIT=DISK,                        00003160
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6400)                        00003170
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00003180
//           LABEL=(26,NL),DISP=(OLD,PASS,KEEP),                        00003190
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6400,DEN=3)                  00003200
//SYSIN DD      *                                                       00003210
        COPY OUTDD=RESERVE                                              00003220
             INDD=INPDS                                                 00003230
/*                                                                      00003240
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00003250
//SYSPRINT DD SYSOUT=A                                                  00003260
//RESERVE DD DSN=TF08507.AIS.IOLIB.FORT,                                00003270
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00003280
//         SPACE=(TRK,(5,5,3),RLSE),UNIT=DISK,                          00003290
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00003300
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00003310
//           LABEL=(27,NL),DISP=(OLD,PASS,KEEP),                        00003320
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00003330
//SYSIN DD      *                                                       00003340
        COPY OUTDD=RESERVE                                              00003350
             INDD=INPDS                                                 00003360
/*                                                                      00003370
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00003380
//SYSPRINT DD SYSOUT=A                                                  00003390
//RESERVE DD DSN=TF08507.AIS.LIBUSIF.FORT,                              00003400
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00003410
//         SPACE=(TRK,(15,5,3),RLSE),UNIT=DISK,                         00003420
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00003430
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00003440
//           LABEL=(28,NL),DISP=(OLD,PASS,KEEP),                        00003450
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00003460
//SYSIN DD      *                                                       00003470
        COPY OUTDD=RESERVE                                              00003480
             INDD=INPDS                                                 00003490
/*                                                                      00003500
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00003510
//SYSPRINT DD SYSOUT=A                                                  00003520
//RESERVE DD DSN=TF08507.AIS.LPTLIB.FORT,                               00003530
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                       00003540
//         SPACE=(TRK,(25,10,15),RLSE),UNIT=DISK,                       00003550
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                        00003560
```

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//INPOS DD UNIT=TAPE,VOL=SER=AIS592,SPACE=(1,(1,1)),                    00003570
//           LABEL=(29,NL),DISP=(OLD,PASS,KEEP),                        00003580
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00003590
//SYSIN DD       *                                                      00003600
        COPY OUTDD=RESERVE                                             00003610
             INDD=INPOS                                                00003620
/*                                                                     00003630
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003640
//SYSPRINT DD SYSOUT=A                                                 00003650
//RESERVE DD DSN=TF08507.AIS.MOXLAT.FORT,                              00003660
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TS0006,                      00003670
//         SPACE=(TRK,(5,5,3),RLSE),UNIT=DISK,                         00003680
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                        00003690
//INPOS DD UNIT=TAPE,VOL=SER=AIS592,SPACE=(1,(1,1)),                   00003700
//           LABEL=(30,NL),DISP=(OLD,PASS,KEEP),                       00003710
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00003720
//SYSIN DD       *                                                     00003730
        COPY OUTDD=RESERVE                                             00003740
             INDD=INPOS                                                00003750
/*                                                                     00003760
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003770
//SYSPRINT DD SYSOUT=A                                                 00003780
//RESERVE DD DSN=TF08507.AIS.OFOLIB.FORT,                              00003790
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TS0006,                      00003800
//         SPACE=(TRK,(20,5,7),RLSE),UNIT=DISK,                        00003810
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                        00003820
//INPOS DD UNIT=TAPE,VOL=SER=AIS592,SPACE=(1,(1,1)),                   00003830
//           LABEL=(31,NL),DISP=(OLD,PASS,KEEP),                       00003840
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00003850
//SYSIN DD       *                                                     00003860
        COPY OUTDD=RESERVE                                             00003870
             INDD=INPOS                                                00003880
/*                                                                     00003890
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003900
//SYSPRINT DD SYSOUT=A                                                 00003910
//RESERVE DD DSN=TF08507.AIS.PLOTFLIB.FORT,                            00003920
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TS0006,                      00003930
//         SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                         00003940
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00003950
//INPOS DD UNIT=TAPE,VOL=SER=AIS592,SPACE=(1,(1,1)),                   00003960
//           LABEL=(32,NL),DISP=(OLD,PASS,KEEP),                       00003970
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00003980
//SYSIN DD       *                                                     00003990
        COPY OUTDD=RESERVE                                             00004000
             INDD=INPOS                                                00004010
/*                                                                     00004020
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00004030
//SYSPRINT DD SYSOUT=A                                                 00004040
//RESERVE DD DSN=TF08507.AIS.PLOTL.FORT,                               00004050
//         DISP=(NEW,CATLG,CATLG),VOL=SER=TS0006,                      00004060
//         SPACE=(TRK,(15,5,7),RLSE),UNIT=DISK,                        00004070
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00004080
//INPOS DD UNIT=TAPE,VOL=SER=AIS592,SPACE=(1,(1,1)),                   00004090
//           LABEL=(33,NL),DISP=(OLD,PASS,KEEP),                       00004100
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00004110
//SYSIN DD       *                                                     00004120
        COPY OUTDD=RESERVE                                             00004130
             INDD=INPOS                                                00004140
/*                                                                     00004150
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00004160
```

```
//SYSPRINT DD SYSOUT=A                                                  00004170
//RESERVE DD DSN=TF08507.AIS.XLATLIB.FORT,                              00004180
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00004190
//          SPACE=(TRK,(5,5,2),RLSE),UNIT=DISK,                         00004200
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00004210
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00004220
//           LABEL=(34,NL),DISP=(OLD,PASS,KEEP),                        00004230
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00004240
//SYSIN DD      *                                                       00004250
        COPY OUTDD=RESERVE                                              00004260
             INDD=INPDS                                                 00004270
/*                                                                      00004280
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00004290
//SYSPRINT DD SYSOUT=A                                                  00004300
//RESERVE DD DSN=TF08507.AIS.XLATLIB.FORT,                              00004310
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00004320
//          SPACE=(TRK,(10,5,3),RLSE),UNIT=DISK,                        00004330
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)                        00004340
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00004350
//           LABEL=(35,NL),DISP=(OLD,PASS,KEEP),                        00004360
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                   00004370
//SYSIN DD      *                                                       00004380
        COPY OUTDD=RESERVE                                              00004390
             INDD=INPDS                                                 00004400
/*                                                                      00004410
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00004420
//SYSPRINT DD SYSOUT=A                                                  00004430
//RESERVE DD DSN=TF08507.AIS.CHECKIN.DATA,                              00004440
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00004450
//          SPACE=(TRK,(70,20,2),RLSE),UNIT=DISK,                       00004460
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00004470
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00004480
//           LABEL=(36,NL),DISP=(OLD,PASS,KEEP),                        00004490
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00004500
//SYSIN DD      *                                                       00004510
        COPY OUTDD=RESERVE                                              00004520
             INDD=INPDS                                                 00004530
/*                                                                      00004540
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00004550
//SYSPRINT DD SYSOUT=A                                                  00004560
//RESERVE DD DSN=TF08507.AIS.MERGEIN.DATA,                              00004570
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00004580
//          SPACE=(TRK,(85,20,2),RLSE),UNIT=DISK,                       00004590
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00004600
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00004610
//           LABEL=(37,NL),DISP=(OLD,PASS,KEEP),                        00004620
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00004630
//SYSIN DD      *                                                       00004640
        COPY OUTDD=RESERVE                                              00004650
             INDD=INPDS                                                 00004660
/*                                                                      00004670
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00004680
//SYSPRINT DD SYSOUT=A                                                  00004690
//RESERVE DD DSN=TF08507.AIS.SIMLATOR.DATA,                             00004700
//          DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,                      00004710
//          SPACE=(TRK,(100,20,2),RLSE),UNIT=DISK,                      00004720
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00004730
//INPDS DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00004740
//           LABEL=(38,NL),DISP=(OLD,PASS,KEEP),                        00004750
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00004760
```

```
//SYSIN DD      *                                                  00004770
        COPY OUTDD=RESERVE                                         00004780
             INDD=INPDS                                            00004790
/*                                                                 00004800
```

```
**** TSO FOREGROUND HARDCOPY ****
DSNAME=TF01503.AIS.TAPE.CNTL                          (CRKSRJCL)

//  EXEC PGM=IEBGENER                                                  00000010
//SYSPRINT DD SYSOUT=A                                                 00000020
//SYSIN    DD DUMMY                                                    00000030
//SYSUT1   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                00000040
//            LABEL=(39,NL),DISP=(OLD,PASS,KEEP),                      00000050
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)               00000060
//SYSUT2   DD DSN=TF08507.CRKSRC.CNTL,                                 00000070
//            UNIT=DISK,DISP=(NEW,CATLG,CATLG),VOL=SER=TSO006,         00000080
//         SPACE=(TRK,(5,2),RLSE),                                     00000090
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)                       00000100
/*                                                                     00000110
```

```
**** TSO FOREGROUND HARDCOPY ****
DSNAME=TF01508.AIS.TAPE.CNTL                    (CUTEXC  )

//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000010
//SYSPRINT DD SYSOUT=A                                                 00000020
//INPDS DD DSN=TF01508.AIS.LIBUTIL.LOAD,                               00000030
//         DISP=(OLD,KEEP,KEEP)                                        00000040
//RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000050
//            LABEL=(1,BLP),DISP=(NEW,PASS,KEEP),                      00000060
//            DCB=(RECFM=U,LRECL=96,BLKSIZE=19069,DEN=3)               00000070
//SYSIN DD     *                                                       00000080
        COPY OUTDD=RESERVE                                           00000090
             INDD=INPDS                                              00000100
/*                                                                    00000110
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000120
//SYSPRINT DD SYSOUT=A                                                 00000130
//INPDS DD DSN=TF01508.AIS.SYSTEM.LOAD,                                00000140
//         DISP=(OLD,KEEP,KEEP)                                        00000150
//RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000160
//            LABEL=(2,BLP),DISP=(NEW,PASS,KEEP),                      00000170
//            DCB=(RECFM=U,LRECL=96,BLKSIZE=19069,DEN=3)               00000180
//SYSIN DD     *                                                       00000190
        COPY OUTDD=RESERVE                                           00000200
             INDD=INPDS                                              00000210
/*                                                                    00000220
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000230
//SYSPRINT DD SYSOUT=A                                                 00000240
//INPDS DD DSN=TF01508.AIS.CONTRL.CLIST,                               00000250
//         DISP=(OLD,KEEP,KEEP)                                        00000260
//RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000270
//            LABEL=(3,BLP),DISP=(NEW,PASS,KEEP),                      00000280
//            DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)              00000290
//SYSIN DD     *                                                       00000300
        COPY OUTDD=RESERVE                                           00000310
             INDD=INPDS                                              00000320
/*                                                                    00000330
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000340
//SYSPRINT DD SYSOUT=A                                                 00000350
//INPDS DD DSN=TF01508.AIS.USER.CLIST,                                 00000360
//         DISP=(OLD,KEEP,KEEP)                                        00000370
//RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000380
//            LABEL=(4,BLP),DISP=(NEW,PASS,KEEP),                      00000390
//            DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)              00000400
//SYSIN DD     *                                                       00000410
        COPY OUTDD=RESERVE                                           00000420
             INDD=INPDS                                              00000430
/*                                                                    00000440
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000450
//SYSPRINT DD SYSOUT=A                                                 00000460
//INPDS DD DSN=TF01508.AIS.MESSAGES.TEXT,                              00000470
//         DISP=(OLD,KEEP,KEEP)                                        00000480
//RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000490
//            LABEL=(5,BLP),DISP=(NEW,PASS,KEEP),                      00000500
//            DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160,DEN=3)              00000510
//SYSIN DD     *                                                       00000520
        COPY OUTDD=RESERVE                                           00000530
             INDD=INPDS                                              00000540
/*                                                                    00000550
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00000560
```

```
//SYSPRINT DD SYSOUT=A                                                  00000570
// IN DS DD DSN=TF01508.AIS.VERSION.TEXT,                               00000580
//         DISP=(OLD,KEEP,KEEP)                                        00000590
// RESERVE DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                 00000600
//           LABEL=(6,BLP),DISP=(NEW,PASS,KEEP),                       00000610
//           DCB=(RECFM=VB,LRECL=255,BLKSIZE=6160,DEN=3)               00000620
//SYSIN DD     *                                                       00000630
        COPY OUTDD=RESERVE                                            00000640
             INDD=INPDS                                               00000650
/*                                                                    00000660
//  EXEC PGM=IEBGENER                                                 00000670
//SYSPRINT DD SYSOUT=A                                                00000680
//SYSIN    DD DUMMY                                                   00000690
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00000700
//            LABEL=(7,BLP),DISP=(NEW,PASS,KEEP),                     00000710
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)              00000720
//SYSUT1   DD DSN=TF01508.AIS.STARTDB.DBT,                            00000730
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                          00000740
/*                                                                    00000750
//  EXEC PGM=IEBGENER                                                 00000760
//SYSPRINT DD SYSOUT=A                                                00000770
//SYSIN    DD DUMMY                                                   00000780
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00000790
//            LABEL=(8,BLP),DISP=(NEW,PASS,KEEP),                     00000800
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)              00000810
//SYSUT1   DD DSN=TF01508.AIS.MODEL.STARTDB.DBT,                      00000820
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                          00000830
/*                                                                    00000840
//  EXEC PGM=IEBGENER                                                 00000850
//SYSPRINT DD SYSOUT=A                                                00000860
//SYSIN    DD DUMMY                                                   00000870
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00000880
//            LABEL=(9,BLP),DISP=(NEW,PASS,KEEP),                     00000890
//            DCB=(RECFM=VS,LRECL=800,BLKSIZE=800,DEN=3)              00000900
//SYSUT1   DD DSN=TF01508.AIS.PLOT.STARTDB.DBT,                       00000910
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                          00000920
/*                                                                    00000930
//  EXEC PGM=IEBGENER                                                 00000940
//SYSPRINT DD SYSOUT=A                                                00000950
//SYSIN    DD DUMMY                                                   00000960
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00000970
//            LABEL=(10,BLP),DISP=(NEW,PASS,KEEP),                    00000980
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00000990
//SYSUT1   DD DSN=TF01508.AIS.STARTDB.DBF,                            00001000
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                          00001010
/*                                                                    00001020
//  EXEC PGM=IEBGENER                                                 00001030
//SYSPRINT DD SYSOUT=A                                                00001040
//SYSIN    DD DUMMY                                                   00001050
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00001060
//            LABEL=(11,BLP),DISP=(NEW,PASS,KEEP),                    00001070
//            DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)             00001080
//SYSUT1   DD DSN=TF01508.AIS.MODEL.STARTDB.DBF,                      00001090
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                          00001100
/*                                                                    00001110
//  EXEC PGM=IEBGENER                                                 00001120
//SYSPRINT DD SYSOUT=A                                                00001130
//SYSIN    DD DUMMY                                                   00001140
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),               00001150
//            LABEL=(12,BLP),DISP=(NEW,PASS,KEEP),                    00001160
```

```
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                  00001170
//SYSUT1   DD DSN=TF01508.AIS.PLOT.STAPID3.DBF,                            00001180
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001190
/*                                                                         00001200
//  EXEC PGM=IEBGENER                                                      00001210
//SYSPRINT DD SYSOUT=A                                                     00001220
//SYSIN    DD DUMMY                                                        00001230
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001240
//             LABEL=(13,BLP),DISP=(NEW,PASS,KEEP),                        00001250
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001260
//SYSUT1   DD DSN=TF01508.AIS.SYSTEM.LIBRARY.DBF,                          00001270
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001280
/*                                                                         00001290
//  EXEC PGM=IEBGENER                                                      00001300
//SYSPRINT DD SYSOUT=A                                                     00001310
//SYSIN    DD DUMMY                                                        00001320
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001330
//             LABEL=(14,BLP),DISP=(NEW,PASS,KEEP),                        00001340
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001350
//SYSUT1   DD DSN=TF01508.TEST091.DBF,                                     00001360
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001370
/*                                                                         00001380
//  EXEC PGM=IEBGENER                                                      00001390
//SYSPRINT DD SYSOUT=A                                                     00001400
//SYSIN    DD DUMMY                                                        00001410
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001420
//             LABEL=(15,BLP),DISP=(NEW,PASS,KEEP),                        00001430
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001440
//SYSUT1   DD DSN=TF01508.TESTOBA.DBF,                                     00001450
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001460
/*                                                                         00001470
//  EXEC PGM=IEBGENER                                                      00001480
//SYSPRINT DD SYSOUT=A                                                     00001490
//SYSIN    DD DUMMY                                                        00001500
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001510
//             LABEL=(16,BLP),DISP=(NEW,PASS,KEEP),                        00001520
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001530
//SYSUT1   DD DSN=TF01508.TESTOBB.DBF,                                     00001540
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001550
/*                                                                         00001560
//  EXEC PGM=IEBGENER                                                      00001570
//SYSPRINT DD SYSOUT=A                                                     00001580
//SYSIN    DD DUMMY                                                        00001590
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001600
//             LABEL=(17,BLP),DISP=(NEW,PASS,KEEP),                        00001610
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001620
//SYSUT1   DD DSN=TF01508.TESTOBC.DBF,                                     00001630
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001640
/*                                                                         00001650
//  EXEC PGM=IEBGENER                                                      00001660
//SYSPRINT DD SYSOUT=A                                                     00001670
//SYSIN    DD DUMMY                                                        00001680
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISEX2,SPACE=(1,(1,1)),                    00001690
//             LABEL=(18,BLP),DISP=(NEW,PASS,KEEP),                        00001700
//             DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)                 00001710
//SYSUT1   DD DSN=TF01508.TESTOBD.DBF,                                     00001720
//             UNIT=DISK,DISP=(OLD,KEEP,KEEP)                              00001730
/*                                                                         00001740
//  EXEC PGM=IEBGENER                                                      00001750
//SYSPRINT DD SYSOUT=A                                                     00001760
```

```
SYSIN    DD DUMMY                                                  00001770
SYSUT2   DD UNIT=TAPE,VOL=SER=AISE*2,SPACE=(1,(1,1)),              00001780
//          LABEL=(1[illegible],BLP),DISP=(NEW,PASS,KEEP),                00001790
//          DCB=(RECFM=F,LRECL=4096,BLKSIZE=4096,DEN=3)            00001800
//SYSUT1  DD DSN=TF01508.TESTCLE.DEF,                              00001810
//          UNIT=DISK,DISP=(OLD,KEEP,KEEP)                         00001820
//*                                                                00001830
//   EXEC PGM=IEBGENER                                             00001840
SYSPRINT DD SYSOUT=A                                               00001850
SYSIN    DD DUMMY                                                  00001860
SYSUT2   DD UNIT=TAPE,VOL=SER=AISE*2,SPACE=(1,(1,1)),              00001870
//          LABEL=(20,BLP),DISP=(NEW,PASS,KEEP),                   00001880
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)             00001890
SYSUT1   DD DSN=TF01508.CRKEYC.CNTL,                               00001900
//          UNIT=DISK,DISP=(OLD,KEEP,KEEP)                         00001910
//*                                                                00001920
```

```
**** TSO FOREGROUND HARDCOPY ****
DSNAME='TF01508.AIS.TAPE.CNTL'                    (CUTSRC  )

//  EXEC PGM=IEBGENER                                          00000010
//SYSPRINT DD SYSOUT=A                                         00000020
//SYSIN    DD DUMMY                                            00000030
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000040
//            LABEL=(1,BLP),DISP=(NEW,PASS,KEEP),              00000050
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)       00000060
//SYSUT1   DD DSN=TF01508.AIS.DDL.DATA,                        00000070
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000080
/*                                                             00000090
//  EXEC PGM=IEBGENER                                          00000100
//SYSPRINT DD SYSOUT=A                                         00000110
//SYSIN    DD DUMMY                                            00000120
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000130
//            LABEL=(2,BLP),DISP=(NEW,PASS,KEEP),              00000140
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)       00000150
//SYSUT1   DD DSN=TF01508.AIS.MODEL.DDL.DATA,                  00000160
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000170
/*                                                             00000180
//  EXEC PGM=IEBGENER                                          00000190
//SYSPRINT DD SYSOUT=A                                         00000200
//SYSIN    DD DUMMY                                            00000210
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000220
//            LABEL=(3,BLP),DISP=(NEW,PASS,KEEP),              00000230
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)       00000240
//SYSUT1   DD DSN=TF01508.AIS.PLOT.DDL.DATA,                   00000250
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000260
/*                                                             00000270
//  EXEC PGM=IEBGENER                                          00000280
//SYSPRINT DD SYSOUT=A                                         00000290
//SYSIN    DD DUMMY                                            00000300
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000310
//            LABEL=(4,BLP),DISP=(NEW,PASS,KEEP),              00000320
//            DCB=(RECFM=U,LRECL=0,BLKSIZE=800,DEN=3)          00000330
//SYSUT1   DD DSN=TF01508.AIS.KERNEL.ADEGRAPH.DATA,            00000340
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000350
/*                                                             00000360
//  EXEC PGM=IEBGENER                                          00000370
//SYSPRINT DD SYSOUT=A                                         00000380
//SYSIN    DD DUMMY                                            00000390
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000400
//            LABEL=(5,BLP),DISP=(NEW,PASS,KEEP),              00000410
//            DCB=(RECFM=FB,LRECL=106,BLKSIZE=1060,DEN=3)      00000420
//SYSUT1   DD DSN=TF01508.AIS.KERNEL.FORMSPEC.DATA,            00000430
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000440
/*                                                             00000450
//  EXEC PGM=IEBGENER                                          00000460
//SYSPRINT DD SYSOUT=A                                         00000470
//SYSIN    DD DUMMY                                            00000480
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),        00000490
//            LABEL=(6,BLP),DISP=(NEW,PASS,KEEP),              00000500
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)       00000510
//SYSUT1   DD DSN=TF01508.AIS.KERNEL.GRAPHICS.DATA,            00000520
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                   00000530
/*                                                             00000540
//  EXEC PGM=IEBGENER                                          00000550
//SYSPRINT DD SYSOUT=A                                         00000560
```

```
//*SYSIN    DD DUMMY                                                    00000570
//*SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00000580
//*            LABEL=(7,BLP),DISP=(NEW,PASS,KEEP),                    00000590
//*            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)             00000600
//*SYSUT1   DD DSN=TF01508.AIS.KERNEL.SYM2OL.DATA,                     00000610
//*            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                         00000620
//*                                                                    00000630
//*  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                 00000640
//*SYSPRINT DD SYSOUT=A                                               00000650
//*INPDS DD DSN=TF01508.AIS.SYSGEN.CLIST,                             00000660
//*         DISP=(OLD,KEEP,KEEP)                                      00000670
//*RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00000680
//*            LABEL=(8,BLP),DISP=(NEW,PASS,KEEP),                    00000690
//*            DCB=(RECFM=VB,LRECL=255,BLKSIZE=1680,DEN=3)            00000700
//SYSIN DD      *                                                     00000710
        COPY OUTDD=RESERVE                                           00000720
             INDD=INPDS                                              00000730
/*                                                                   00000740
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                00000750
//SYSPRINT DD SYSOUT=A                                               00000760
//INPDS DD DSN=TF01508.AIS.SYSGEN.LINK.CNTL,                         00000770
//         DISP=(OLD,KEEP,KEEP)                                      00000780
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00000790
//            LABEL=(9,BLP),DISP=(NEW,PASS,KEEP),                    00000800
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=800,DEN=3)              00000810
//SYSIN DD      *                                                    00000820
        COPY OUTDD=RESERVE                                           00000830
             INDD=INPDS                                              00000840
/*                                                                   00000850
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                00000860
//SYSPRINT DD SYSOUT=A                                               00000870
//INPDS DD DSN=TF01508.ADBMS.SLIB.ASM,                               00000880
//         DISP=(OLD,KEEP,KEEP)                                      00000890
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00000900
//            LABEL=(10,BLP),DISP=(NEW,PASS,KEEP),                   00000910
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=1680,DEN=3)             00000920
//SYSIN DD      *                                                    00000930
        COPY OUTDD=RESERVE                                           00000940
             INDD=INPDS                                              00000950
/*                                                                   00000960
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                00000970
//SYSPRINT DD SYSOUT=A                                               00000980
//INPDS DD DSN=TF01508.AIS.IOLIB.ASM,                                00000990
//         DISP=(OLD,KEEP,KEEP)                                      00001000
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00001010
//            LABEL=(11,BLP),DISP=(NEW,PASS,KEEP),                   00001020
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=4160,DEN=3)             00001030
//SYSIN DD      *                                                    00001040
        COPY OUTDD=RESERVE                                           00001050
             INDD=INPDS                                              00001060
/*                                                                   00001070
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                00001080
//SYSPRINT DD SYSOUT=A                                               00001090
//INPDS DD DSN=TF01508.ADBMS.OBLIB.FORT,                             00001100
//         DISP=(OLD,KEEP,KEEP)                                      00001110
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),               00001120
//            LABEL=(12,BLP),DISP=(NEW,PASS,KEEP),                   00001130
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360,DEN=3)             00001140
//SYSIN DD      *                                                    00001150
        COPY OUTDD=RESERVE                                           00001160
```

```
            INDD=INPDS                                                  00001170
/*                                                                      00001180
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001190
//SYSPRINT DD SYSOUT=A                                                  00001200
//INPDS DD DSN=TF01508.ADBMS.FLIB.FORT,                                 00001210
//         DISP=(OLD,KEEP,KEEP)                                         00001220
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001230
//            LABEL=(13,BLP),DISP=(NEW,PASS,KEEP),                      00001240
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=3360,DEN=3)                00001250
//SYSIN DD      *                                                       00001260
        COPY OUTDD=RESERVE                                              00001270
             INDD=INPDS                                                 00001280
/*                                                                      00001290
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001300
//SYSPRINT DD SYSOUT=A                                                  00001310
//INPDS DD DSN=TF01508.AIS.ADEDBL.FORT,                                 00001320
//         DISP=(OLD,KEEP,KEEP)                                         00001330
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001340
//            LABEL=(14,BLP),DISP=(NEW,PASS,KEEP),                      00001350
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00001360
//SYSIN DD      *                                                       00001370
        COPY OUTDD=RESERVE                                              00001380
             INDD=INPDS                                                 00001390
/*                                                                      00001400
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001410
//SYSPRINT DD SYSOUT=A                                                  00001420
//INPDS DD DSN=TF01508.AIS.ADELIB.FORT,                                 00001430
//         DISP=(OLD,KEEP,KEEP)                                         00001440
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001450
//            LABEL=(15,BLP),DISP=(NEW,PASS,KEEP),                      00001460
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00001470
//SYSIN DD      *                                                       00001480
        COPY OUTDD=RESERVE                                              00001490
             INDD=INPDS                                                 00001500
/*                                                                      00001510
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001520
//SYSPRINT DD SYSOUT=A                                                  00001530
//INPDS DD DSN=TF01508.AIS.ANLOBLIB.FORT,                               00001540
//         DISP=(OLD,KEEP,KEEP)                                         00001550
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001560
//            LABEL=(16,BLP),DISP=(NEW,PASS,KEEP),                      00001570
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00001580
//SYSIN DD      *                                                       00001590
        COPY OUTDD=RESERVE                                              00001600
             INDD=INPDS                                                 00001610
/*                                                                      00001620
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001630
//SYSPRINT DD SYSOUT=A                                                  00001640
//INPDS DD DSN=TF01508.AIS.AUILIB.FORT,                                 00001650
//         DISP=(OLD,KEEP,KEEP)                                         00001660
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001670
//            LABEL=(17,BLP),DISP=(NEW,PASS,KEEP),                      00001680
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                 00001690
//SYSIN DD      *                                                       00001700
        COPY OUTDD=RESERVE                                              00001710
             INDD=INPDS                                                 00001720
/*                                                                      00001730
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001740
//SYSPRINT DD SYSOUT=A                                                  00001750
//INPDS DD DSN=TF01503.AIS.CLILIB.FORT,                                 00001760
```

```
//         DISP=(OLD,KEEP,KEEP)                                          00001770
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                    00001780
//           LABEL=(18,BLP),DISP=(NEW,PASS,KEEP),                        00001790
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                  00001800
//SYSIN DD      *                                                        00001810
        COPY OUTDD=RESERVE                                              00001820
             INDD=INPDS                                                 00001830
/*                                                                      00001840
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001850
//SYSPRINT DD SYSOUT=A                                                  00001860
//INPDS DD DSN=TF01508.AIS.COMLAT.FORT,                                 00001870
//         DISP=(OLD,KEEP,KEEP)                                         00001880
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00001890
//           LABEL=(19,BLP),DISP=(NEW,PASS,KEEP),                       00001900
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00001910
//SYSIN DD      *                                                       00001920
        COPY OUTDD=RESERVE                                              00001930
             INDD=INPDS                                                 00001940
/*                                                                      00001950
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00001960
//SYSPRINT DD SYSOUT=A                                                  00001970
//INPDS DD DSN=TF01508.AIS.CBDLIB.FORT,                                 00001980
//         DISP=(OLD,KEEP,KEEP)                                         00001990
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002000
//           LABEL=(20,BLP),DISP=(NEW,PASS,KEEP),                       00002010
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00002020
//SYSIN DD      *                                                       00002030
        COPY OUTDD=RESERVE                                              00002040
             INDD=INPDS                                                 00002050
/*                                                                      00002060
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002070
//SYSPRINT DD SYSOUT=A                                                  00002080
//INPDS DD DSN=TF01508.AIS.OBLIB.FORT,                                  00002090
//         DISP=(OLD,KEEP,KEEP)                                         00002100
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002110
//           LABEL=(21,BLP),DISP=(NEW,PASS,KEEP),                       00002120
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00002130
//SYSIN DD      *                                                       00002140
        COPY OUTDD=RESERVE                                              00002150
             INDD=INPDS                                                 00002160
/*                                                                      00002170
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002180
//SYSPRINT DD SYSOUT=A                                                  00002190
//INPDS DD DSN=TF01508.AIS.QUILIB.FORT,                                 00002200
//         DISP=(OLD,KEEP,KEEP)                                         00002210
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002220
//           LABEL=(22,BLP),DISP=(NEW,PASS,KEEP),                       00002230
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                  00002240
//SYSIN DD      *                                                       00002250
        COPY OUTDD=RESERVE                                              00002260
             INDD=INPDS                                                 00002270
/*                                                                      00002280
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002290
//SYSPRINT DD SYSOUT=A                                                  00002300
//INPDS DD DSN=TF01508.AIS.FAST.FORT,                                   00002310
//         DISP=(OLD,KEEP,KEEP)                                         00002320
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002330
//           LABEL=(23,BLP),DISP=(NEW,PASS,KEEP),                       00002340
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00002350
//SYSIN DD      *                                                       00002360
```

```
        COPY OUTDD=RESERVE                                              00002370
             INDD=INPDS                                                 00002380
/*                                                                      00002390
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002400
//SYSPRINT DD SYSOUT=A                                                  00002410
//INPDS DD DSN=TF01508.AIS.HCLIB.FORT,                                  00002420
//         DISP=(OLD,KEEP,KEEP)                                         00002430
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002440
//         LABEL=(24,BLP),DISP=(NEW,PASS,KEEP),                         00002450
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                   00002460
//SYSIN DD      *                                                       00002470
        COPY OUTDD=RESERVE                                              00002480
             INDD=INPDS                                                 00002490
/*                                                                      00002500
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002510
//SYSPRINT DD SYSOUT=A                                                  00002520
//INPDS DD DSN=TF01508.AIS.HPLIB.FORT,                                  00002530
//         DISP=(OLD,KEEP,KEEP)                                         00002540
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002550
//         LABEL=(25,BLP),DISP=(NEW,PASS,KEEP),                         00002560
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                   00002570
//SYSIN DD      *                                                       00002580
        COPY OUTDD=RESERVE                                              00002590
             INDD=INPDS                                                 00002600
/*                                                                      00002610
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002620
//SYSPRINT DD SYSOUT=A                                                  00002630
//INPDS DD DSN=TF01508.AIS.INITDB.FORT,                                 00002640
//         DISP=(OLD,KEEP,KEEP)                                         00002650
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002660
//         LABEL=(26,BLP),DISP=(NEW,PASS,KEEP),                         00002670
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6400,DEN=3)                   00002680
//SYSIN DD      *                                                       00002690
        COPY OUTDD=RESERVE                                              00002700
             INDD=INPDS                                                 00002710
/*                                                                      00002720
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002730
//SYSPRINT DD SYSOUT=A                                                  00002740
//INPDS DD DSN=TF01508.AIS.IOLIB.FORT,                                  00002750
//         DISP=(OLD,KEEP,KEEP)                                         00002760
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002770
//         LABEL=(27,BLP),DISP=(NEW,PASS,KEEP),                         00002780
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                   00002790
//SYSIN DD      *                                                       00002800
        COPY OUTDD=RESERVE                                              00002810
             INDD=INPDS                                                 00002820
/*                                                                      00002830
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002840
//SYSPRINT DD SYSOUT=A                                                  00002850
//INPDS DD DSN=TF01508.AIS.LIBUSIF.FORT,                                00002860
//         DISP=(OLD,KEEP,KEEP)                                         00002870
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002880
//         LABEL=(28,BLP),DISP=(NEW,PASS,KEEP),                         00002890
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                   00002900
//SYSIN DD      *                                                       00002910
        COPY OUTDD=RESERVE                                              00002920
             INDD=INPDS                                                 00002930
/*                                                                      00002940
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                   00002950
//SYSPRINT DD SYSOUT=A                                                  00002960
```

```
//INPDS DD DSN=TF01508.AIS.LPTLIB.FORT,                                 00002970
//         DISP=(OLD,KEEP,KEEP)                                         00002980
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                  00002990
//           LABEL=(29,BLP),DISP=(NEW,PASS,KEEP),                       00003000
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                 00003010
//SYSIN DD     *                                                        00003020
        COPY OUTDD=RESERVE                                             00003030
             INDD=INPDS                                                00003040
/*                                                                     00003050
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003060
//SYSPRINT DD SYSOUT=A                                                 00003070
//INPDS DD DSN=TF01508.AIS.MOXLAT.FORT,                                00003080
//         DISP=(OLD,KEEP,KEEP)                                        00003090
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                 00003100
//           LABEL=(30,BLP),DISP=(NEW,PASS,KEEP),                      00003110
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                 00003120
//SYSIN DD     *                                                       00003130
        COPY OUTDD=RESERVE                                             00003140
             INDD=INPDS                                                00003150
/*                                                                     00003160
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003170
//SYSPRINT DD SYSOUT=A                                                 00003180
//INPDS DD DSN=TF01508.AIS.OFDLIB.FORT,                                00003190
//         DISP=(OLD,KEEP,KEEP)                                        00003200
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                 00003210
//           LABEL=(31,BLP),DISP=(NEW,PASS,KEEP),                      00003220
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)                 00003230
//SYSIN DD     *                                                       00003240
        COPY OUTDD=RESERVE                                             00003250
             INDD=INPDS                                                00003260
/*                                                                     00003270
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003280
//SYSPRINT DD SYSOUT=A                                                 00003290
//INPDS DD DSN=TF01508.AIS.PLOTFLIB.FORT,                              00003300
//         DISP=(OLD,KEEP,KEEP)                                        00003310
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                 00003320
//           LABEL=(32,BLP),DISP=(NEW,PASS,KEEP),                      00003330
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00003340
//SYSIN DD     *                                                       00003350
        COPY OUTDD=RESERVE                                             00003360
             INDD=INPDS                                                00003370
/*                                                                     00003380
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003390
//SYSPRINT DD SYSOUT=A                                                 00003400
//INPDS DD DSN=TF01508.AIS.PLOTL.FORT,                                 00003410
//         DISP=(OLD,KEEP,KEEP)                                        00003420
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                 00003430
//           LABEL=(33,BLP),DISP=(NEW,PASS,KEEP),                      00003440
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00003450
//SYSIN DD     *                                                       00003460
        COPY OUTDD=RESERVE                                             00003470
             INDD=INPDS                                                00003480
/*                                                                     00003490
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                                  00003500
//SYSPRINT DD SYSOUT=A                                                 00003510
//INPDS DD DSN=TF01508.AIS.TTYAUI.FORT,                                00003520
//         DISP=(OLD,KEEP,KEEP)                                        00003530
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),                 00003540
//           LABEL=(34,BLP),DISP=(NEW,PASS,KEEP),                      00003550
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)                00003560
```

```
//SYSIN DD      *                                                 00003570
        COPY OUTDD=RESERVE                                        00003580
             INDD=INPDS                                           00003590
/*                                                                00003600
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                             00003610
//SYSPRINT DD SYSOUT=A                                            00003620
//INPDS DD DSN=TF01508.AIS.XLATLIB.FORT,                          00003630
//         DISP=(OLD,KEEP,KEEP)                                   00003640
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),            00003650
//           LABEL=(35,BLP),DISP=(NEW,PASS,KEEP),                 00003660
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=400,DEN=3)            00003670
//SYSIN DD      *                                                 00003680
        COPY OUTDD=RESERVE                                        00003690
             INDD=INPDS                                           00003700
/*                                                                00003710
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                             00003720
//SYSPRINT DD SYSOUT=A                                            00003730
//INPDS DD DSN=TF01508.AIS.CHECKIN.DATA,                          00003740
//         DISP=(OLD,KEEP,KEEP)                                   00003750
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),            00003760
//           LABEL=(36,BLP),DISP=(NEW,PASS,KEEP),                 00003770
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)           00003780
//SYSIN DD      *                                                 00003790
        COPY OUTDD=RESERVE                                        00003800
             INDD=INPDS                                           00003810
/*                                                                00003820
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                             00003830
//SYSPRINT DD SYSOUT=A                                            00003840
//INPDS DD DSN=TF01508.AIS.MERGEIN.DATA,                          00003850
//         DISP=(OLD,KEEP,KEEP)                                   00003860
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),            00003870
//           LABEL=(37,BLP),DISP=(NEW,PASS,KEEP),                 00003880
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)           00003890
//SYSIN DD      *                                                 00003900
        COPY OUTDD=RESERVE                                        00003910
             INDD=INPDS                                           00003920
/*                                                                00003930
//  EXEC PGM=IEBCOPY,PARM='SIZE=100K'                             00003940
//SYSPRINT DD SYSOUT=A                                            00003950
//INPDS DD DSN=TF01508.AIS.SIMLATOR.DATA,                         00003960
//         DISP=(OLD,KEEP,KEEP)                                   00003970
//RESERVE DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),            00003980
//           LABEL=(38,BLP),DISP=(NEW,PASS,KEEP),                 00003990
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)           00004000
//SYSIN DD      *                                                 00004010
        COPY OUTDD=RESERVE                                        00004020
             INDD=INPDS                                           00004030
/*                                                                00004040
//  EXEC PGM=IEBGENER                                             00004050
//SYSPRINT DD SYSOUT=A                                            00004060
//SYSIN    DD DUMMY                                               00004070
//SYSUT2   DD UNIT=TAPE,VOL=SER=AISSR2,SPACE=(1,(1,1)),           00004080
//            LABEL=(39,BLP),DISP=(NEW,PASS,KEEP),                00004090
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DEN=3)          00004100
//SYSUT1   DD DSN=TF01508.CRMSPC.CNTL,                            00004110
//            UNIT=DISK,DISP=(OLD,KEEP,KEEP)                      00004120
/*                                                                00004130
```

# APPENDIX B

## MODEL DESCRIPTION FOR INSTALLATION TESTING SUPPORT

```
$$$
```

PAGE 2

| QUEUE MNEMONIC | MAXIMUM SIZE | COMMENT |
|---|---|---|

RESOURCE DEFINITION.....

| RESOURCE MNEMONIC | TOTAL # UNITS | INITIAL # UNITS | DESCRIPTION |
|---|---|---|---|
| BUFFER | 1 | 1 | BUFFER |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| B1 | 1 | 1 | RESOURCE FOR CPU NODE |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 2 | |
| | M.ROUTE | 0 | |
| B1B2 | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | RATE | 56 | |
| B2 | 1 | 1 | RESOURCE FOR CPU NODE |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 2 | |
| | M.ROUTE | 0 | |
| | RATE | 167 | |
| B2B3 | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | RATE | 28 | |
| B3 | 1 | 1 | RESOURCE FOR CPU NODE |

PAGE 3

| ATTR. NAME | INITIAL VALUE | |
|---|---|---|
| COST | 0 | |
| D.CS | 0 | |
| M.CS | 2 | |
| M.ROUTE | 0 | |
| RATE | 167 | |
| B3B4 | 1 | 1 RESOURCE FOR CHANNEL CONNECTOR |
| ATTR. NAME | INITIAL VALUE | |
| COST | 0 | |
| RATE | 28 | |
| B4 | 1 | 1 RESOURCE FOR CPU NODE |
| ATTR. NAME | INITIAL VALUE | |
| COST | 0 | |
| D.CS | 0 | |
| M.CS | 2 | |
| M.ROUTE | 0 | |
| B4B5 | 1 | 1 RESOURCE FOR CHANNEL CONNECTOR |
| ATTR. NAME | INITIAL VALUE | |
| COST | 0 | |
| RATE | 28 | |
| B5 | 1 | 1 RESOURCE FOR CPU NODE |
| ATTR. NAME | INITIAL VALUE | |
| COST | 0 | |
| D.CS | 0 | |
| M.CS | 2 | |
| M.ROUTE | 0 | |
| RATE | 167 | |
| B5B6 | 1 | 1 RESOURCE FOR CHANNEL CONNECTOR |
| ATTR. NAME | INITIAL VALUE | |
| COST | 0 | |
| RATE | 28 | |

PAGE 4

| | | | |
|---|---|---|---|
| B6 | 1 | 1 | RESOURCE FOR CPU NODE |
| | ATTR | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 2 | |
| | M.ROUTE | 0 | |
| | RATE | 167 | |
| B6B1 | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | 28 | |
| HB1.A | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | 167 | |
| HB1.B | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | 167 | |
| HB2.A | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | 167 | |
| HB2.B | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | 167 | |
| HB3.A | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |

```
          COST      0
          RATE      167

HB3.B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB4.A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB4.B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB5.A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB5.B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB6.A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          COST      0
          RATE      167

HB6.B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
```

| | | | |
|---|---|---|---|
| | [illegible] | 0 | |
| | RATE | 167 | |
| | 1 | 1 | RESOURCE FOR NODE H1 |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 0 | |
| | M.ROUTE | 0 | |
| H2 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 0 | |
| | M.ROUTE | 0 | |
| | RATE | 167 | |
| H3 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 0 | |
| | M.ROUTE | 0 | |
| H4 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 0 | |
| | M.ROUTE | 0 | |
| H5 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | D.CS | 0 | |
| | M.CS | 0 | |
| | M.ROUTE | 0 | |

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H6 1 1 RESOURCE FOR NODE

| ATTR. NAME | INITIAL VALUE |
|---|---|
| COST | 0 |
| D.CS | 0 |
| M.CS | 0 |
| M.ROUTE | 0 |

ARCHITECTURE LEGAL PATH DEFINITION

| FROM DEVICE | TO DEVICE | NEXT DEVICE | VIA LINK |
|---|---|---|---|
| B1 | B2 | B2 | B1B2 |
| B1 | B3 | B2 | B1B2 |
| B1 | B4 | B2 | B1B2 |
| B1 | B5 | B2 | B1B2 |
| B1 | B6 | B2 | B1B2 |
| B1 | H1 | H1 | HB1.B |
| B1 | H2 | B2 | B1B2 |
| B1 | H3 | B2 | B1B2 |
| B1 | H4 | B2 | B1B2 |
| B1 | H5 | B2 | B1B2 |
| B1 | H6 | B2 | B1B2 |
| B2 | B1 | B3 | B2B3 |
| B2 | B3 | B3 | B2B3 |
| B2 | B4 | B3 | B2B3 |
| B2 | B5 | B3 | B2B3 |
| B2 | B6 | B3 | B2B3 |
| B2 | H1 | B3 | B2B3 |
| B2 | H2 | H2 | HB2.B |
| B2 | H3 | B3 | B2B3 |
| B2 | H4 | B3 | B2B3 |
| B2 | H5 | B3 | B2B3 |
| B2 | H6 | B3 | B2B3 |
| B3 | B1 | B4 | B3B4 |
| B3 | B2 | B4 | B3B4 |
| B3 | B4 | B4 | B3B4 |
| B3 | B5 | B4 | B3B4 |
| B3 | B6 | B4 | B3B4 |
| B3 | H1 | B4 | B3B4 |
| B3 | H2 | B4 | B3B4 |
| B3 | H3 | H3 | HB3.B |
| B3 | H4 | B4 | B3B4 |
| B3 | H5 | B4 | B3B4 |
| B3 | H6 | B4 | B3B4 |
| B4 | B1 | B5 | B4B5 |
| B4 | B2 | B5 | B4B5 |

| | | | |
|---|---|---|---|
| B4 | B3 | B5 | B4B5 |
| B4 | B5 | B5 | B4B5 |
| B4 | B6 | B5 | B4B5 |
| B4 | H1 | B5 | B4B5 |
| B4 | H2 | B5 | B4B5 |
| B4 | H3 | B5 | B4B5 |
| B4 | H4 | H4 | HB4.B |
| B4 | H5 | B5 | B4B5 |
| B4 | H6 | B5 | B4B5 |
| B5 | B1 | B6 | B5B6 |
| B5 | B2 | B6 | B5B6 |
| B5 | B3 | B6 | B5B6 |
| B5 | B4 | B6 | B5B6 |
| B5 | B6 | B6 | B5B6 |
| B5 | H1 | B6 | B5B6 |
| B5 | H2 | B6 | B5B6 |
| B5 | H3 | B6 | B5B6 |
| B5 | H4 | B6 | B5B6 |
| B5 | H5 | H5 | HB5.B |
| B5 | H6 | B6 | B5B6 |
| B6 | B1 | B1 | B6B1 |
| B6 | B2 | B1 | B6B1 |
| B6 | B3 | B1 | B6B1 |
| B6 | B4 | B1 | B6B1 |
| B6 | B5 | B1 | B6B1 |
| B6 | H1 | B1 | B6B1 |
| B6 | H2 | B1 | B6B1 |
| B6 | H3 | B1 | B6B1 |
| B6 | H4 | B1 | B6B1 |
| B6 | H5 | B1 | B6B1 |
| B6 | H6 | H6 | HB6.B |
| H1 | B1 | B1 | HB1.A |
| H1 | B2 | B1 | HB1.A |
| H1 | B3 | B1 | HB1.A |
| H1 | B4 | B1 | HB1.A |
| H1 | B5 | B1 | HB1.A |
| H1 | B6 | B1 | HB1.A |
| H1 | H2 | B1 | HB1.A |
| H1 | H3 | B1 | HB1.A |
| H1 | H4 | B1 | HB1.A |
| H1 | H5 | B1 | HB1.A |
| H1 | H6 | B1 | HB1.A |
| H2 | B1 | B2 | HB2.A |
| H2 | B2 | B2 | HB2.A |
| H2 | B3 | B2 | HB2.A |
| H2 | B4 | B2 | HB2.A |
| H2 | B5 | B2 | HB2.A |
| H2 | B6 | B2 | HB2.A |
| H2 | H1 | B2 | HB2.A |

| | | | |
|---|---|---|---|
| H2 | H3 | B2 | HB2.A |
| H2 | H4 | B2 | HB2.A |
| H2 | H5 | B2 | HB2.A |
| H2 | H6 | B2 | HB2.A |
| H3 | B1 | B3 | HB3.A |
| H3 | B2 | B3 | HB3.A |
| H3 | B3 | B3 | HB3.A |
| H3 | B4 | B3 | HB3.A |
| H3 | B5 | B3 | HB3.A |
| H3 | B6 | B3 | HB3.A |
| H3 | H1 | B3 | HB3.A |
| H3 | H2 | B3 | HB3.A |
| H3 | H4 | B3 | HB3.A |
| H3 | H5 | B3 | HB3.A |
| H3 | H6 | B3 | HB3.A |
| H4 | B1 | B4 | HB4.A |
| H4 | B2 | B4 | HB4.A |
| H4 | B3 | B4 | HB4.A |
| H4 | B4 | B4 | HB4.A |
| H4 | B5 | B4 | HB4.A |
| H4 | B6 | B4 | HB4.A |
| H4 | H1 | B4 | HB4.A |
| H4 | H2 | B4 | HB4.A |
| H4 | H3 | B4 | HB4.A |
| H4 | H5 | B4 | HB4.A |
| H4 | H6 | B4 | HB4.A |
| H5 | B1 | B5 | HB5.A |
| H5 | B2 | B5 | HB5.A |
| H5 | B3 | B5 | HB5.A |
| H5 | B4 | B5 | HB5.A |
| H5 | B5 | B5 | HB5.A |
| H5 | B6 | B5 | HB5.A |
| H5 | H1 | B5 | HB5.A |
| H5 | H2 | B5 | HB5.A |
| H5 | H3 | B5 | HB5.A |
| H5 | H4 | B5 | HB5.A |
| H5 | H6 | B5 | HB5.A |
| H6 | B1 | B6 | HB6.A |
| H6 | B2 | B6 | HB6.A |
| H6 | B3 | B6 | HB6.A |
| H6 | B4 | B6 | HB6.A |
| H6 | B5 | B6 | HB6.A |
| H6 | B6 | B6 | HB6.A |
| H6 | H1 | B6 | HB6.A |
| H6 | H2 | B6 | HB6.A |
| H6 | H3 | B6 | HB6.A |
| H6 | H4 | B6 | HB6.A |
| H6 | H5 | B6 | HB6.A |

PAGE 10
ACTION DEFINITION.....

| ACTION MNEMONIC | ACTION CLASS | COMMENT |
|---|---|---|
| CS OH | CPU | PROCESSING TO PERFORM CONTEXT SWITCHING |
| ROUTE.OH | CPU | PROCESSING DELAY TO ROUTE A MESSAGE |
| XFER.OH | CHANNEL | PROCESSING DELAY TO ROUTE A MESSAGE OVER A CHANNEL |

PROCESS DEFINITION.....

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| CHLIO | FULL AND HALF DUPLEX CHANNEL LOGIC |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | ALL | NO | | |
| | GIVEN | MSG | | | |
| | ASSIGN | MSG $CNODE | CNODE | | SET INTERNAL NODE CURRENT |
| | ASSIGN | MSG TO.NODE | TNODE | | GET DESTINATION NODE (MSG) |
| | ASSIGN | $NXTNODE NXT.NODE | TO.NODE | | SET NEXT NODE TO DEST N |
| | ASSIGN | $CHANNEL CHANNEL | TO.NODE | | GET CHANNEL TO NEXT NODE |
| | ALLOC | CHANNEL | | | OBTAIN CHANNEL FOR X FER |
| | ASSIGN | CHANNEL VSPEED | RATE | | WHAT IS RATE IN BYTE/SEC? |
| | ASSIGN | MSG VLENGTH | LENGTH | | MESSAGE LENGTH IN BYTES |
| | EVAL | VM.OVHD VSPEED | MULTIPLY VLENGTH | | CALCULATE TRANSFER TIME |
| | COMPARE | VSPEED 167 | | NE AHD | |
| | ASSIGN | 0 VSPEED | | | |
| AHD | ENTRY | | | | |
| | XFER.OH | CONSTANT | VSPEED | | DELAY DUE TO TRANSFER TIME |
| | ASSIGN | NXT.NODE MSG | CNODE | | MESSAGE RESIDES IN NEXT |
| | ASSIGN | NXT.NODE $CNODE | | | SET INTEPNAL NODE REGISTER |
| | DEALLOC | CHANNEL | | | FREE UP CHANNEL AFTER XFER |
| | CALL | IHANDLER | NOWAIT | 0 | INDICATE INTERUPT IN NEXT |
| | GIVEN | MSG | | | |

```
PAGE   11
          END

LOCAL VARIABLES OF PROCESS CHLIO
================================================================================
    1 MSG        (I)    2 TO.NODE          3 NXT.NODE          4 CHANNEL
    5 VSPEED            6 VLENGTH          7 VM.OVHD           8 XFER.OH    (A)
    9 IHANDLER   (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
CONTROL           OPERATING SYSTEM : CONTEXT SWITCHING


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE              CURRENT NODE IS CPU
                  CP
         ALLOC    CP                          SIGNAL CURRENT CPU BUSY
         ASSIGN   CP       M.CS               MEAN CONTEXT SWITCH TIME
                  M.OVHD
         ASSIGN   CP       D.CS               DEV. CONTEXT SWITCH TIME
                  D.OVHD
         CS.OH    CONSTANT M.OVHD             DELAY CONTEXT SWITCH TIME
         COMPARE  MSG      TYPE     EQ        IF RESPONSE- RESUME PARENT
                  $REQ                REQUEST
         ASSIGN   MSG      PTASK              TASK TO RESUME IS IN MSG
                  TASK
         RESUME   TASK               QUEUE UP TASK FOR NODE
         BRANCH   DESTROY  100                END MESSAGE LIFE
REQUEST  ENTRY                               ELSE-> CALL REQUESTED PROC
         ASSIGN   MSG      RTASK              EXECUTE THE CALLED PROCESS
                  PROCESS
         CALL     PROCESS  WAIT     0         WAIT UNTIL COMPLETE
         GIVEN    MSG
         RETURN   MSG
         COMPARE  MSG      RESPONSE EQ        IF WAIT -> SEND MSG BACK
                  $NOWAIT             DESTROY
         ASSIGN   $RESP                       CHANGE MSG RESPONSE TYPE
                  MSG      TYPE
         ASSIGN   MSG      FNODE              SWITCH FROM AND TO NODES
                  MSG      TNODE
         ASSIGN   MSG      CNODE              CURRENT NODE IS FROM NODE
                  MSG      FNODE
         CALL     ROUTER   WAIT     0         RETURN MESSAGE TO ORIGIN
         GIVEN    MSG
         BRANCH   END      100
DESTROY  ENTRY                               TERMINATE MESSAGE AT DEST.
```

```
PAGE   12
          DESTROY  MSG                          NO RESPONSE-TERMINATE MSG
END       ENTRY
          DEALLOC  CP                           INDICATE CP SWITCH DONE
          END

LOCAL VARIABLES OF PROCESS CONTROL
==========================================================================
    1 MSG       (I)    2 CP              3 M.OVHD          4 D.OVHD
    5 CS.OH     (A)    6 TASK            7 PROCESS   (X)   8 ROUTER    (P)

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
ESR-CALL          OPERATING SYSTEM: EXECUTIVE SERVICE REQUEST (CALL )


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   $TASK                      $TASK= INSTANCE TO RESUME
                  MSG      PTASK
         ASSIGN   MSG      RESPONSE          OPTION= $WAIT OF $NOWAIT
                  RESP.OPT
         CALL     ROUTER   WAIT     0        INITIATE ROUTING TO DEST.
         GIVEN    MSG
         COMPARE  RESP.OPT          EQ       SHOULD PARENT SUSPEND ?
                  $NOWAIT           END
         SUSPEND                             PROCESS CALLED WAIT
END      ENTRY                               CONTINUE OR RESUME POINT
         END

LOCAL VARIABLES OF PROCESS ESR-CALL
==========================================================================
    1 MSG       (I)    2 RESP.OPT        3 ROUTER    (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
IHANDLER          OPERATING SYSTEM : INTERUPT HANDLING AND ROUTING


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE             INDICATE CURRENT NODE CPU
                  CP
         COMPARE  MSG      CNODE    EQ       IS MSG AT DESTINATION ?
                  MSG      TNODE    CONTROL
```

```
PAGE   13
          ASSIGN   CP        M.ROUTE             CP ROUTE RATE/ LENGTH
                   RT.OVHD
          ASSIGN   CP        M.CS
                   M.OVHD
          ASSIGN   M.OVHD                        MONITOR OVERHEAD FOR PLOT
                   V.ROUTER
          ALLOC    CP                            OBTAIN CP-HANDLE INTERUPT
          ROUTE.OH CONSTANT M.OVHD               DELAY FOR ROUTING
          DEALLOC  CP                            RELEASE CPU TO OTHERS
          CALL     CHLIO     NOWAIT    0         FORWARD MESSAGE WITH I/O
          GIVEN    MSG
          BRANCH   END       100
CONTROL   ENTRY                                  MESSAGE AT DESTINATION
          COMPARE  MSG       TYPE      EQ        IF RESPONSE-UP PRIORITY
                   $PESP               HPCONTRL
          ASSIGN   MSG       TASKPRI             SET MESSAGE PRIORITY
                   PRIORITY
HPCONTRL  ENTRY                                  PRIORITY=0 IF UNDEFINED
          CALL     CONTROL   NOWAIT    PRIORITY  CONTEXT SWITCH MESSAGE
          GIVEN    MSG
END       ENTRY
          END

LOCAL VARIABLES OF PROCESS IHANDLER
================================================================================
    1 MSG       (I)    2 CP              3 RT.OVHD          4 M.OVHD
    5 ROUTE.OH  (A)    6 CHLIO     (P)   7 PRIORITY         8 CONTROL   (P)

PROCESS
MNEMONIC          DESCRIPTION
========= ======== ================================================
REQ-I/O           GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O


ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
          GIVEN    PROCESS  PRIORITY RESP.OPT
                   MSG.LNTH TO.NODE  MSG
          CREATE   MSG                        CREATE MESSAGE DATA TO RTE
          ASSIGN   $CNODE                     INDICATE CURRENT NODE
                   MSG      CNODE
          ASSIGN   $CNODE                     INDICATE CURRENT NODE FROM
                   MSG      FNODE
          ASSIGN   PROCESS                    INDICATE REQUESTED PROCESS
                   MSG      RTASK
          ASSIGN   PRIORITY                   INDICATE RELATIVE PRIORITY
                   MSG      TASKPRI
          ASSIGN   RESP.OPT                   $NOWAIT OR $ WAIT ON CALL
```

```
                MSG       RESPONSE
          ASSIGN  MSG.LNTH                    INDICATE LENGTH IN BYTES
                  MSG       LENGTH
          COMPARE TO.NODE             EQ      WHERE DOES PROCESS RESIDE
                  $NO                 END
          COMPARE TO.NODE             EQ      DEFAULT TO NODE SELECT
                  $YES                GETNODE
          ASSIGN  TO.NODE                     ELSE-> NODE IS GIVEN
                  MSG       TNODE
          BRANCH  END       100
GETNODE   ENTRY                               DETERMINE NODE FROM PROC.
          ASSIGN  $NODE     PROCESS           $NODE OF PROCESS IN DEF
                  MSG       TNODE
END       ENTRY                               SEND MSG FOR SERVICE
          CALL    ESR-CALL  WAIT      0       EXECUTIVE SERVICING OF MSG
          GIVEN   MSG
          END

LOCAL VARIABLES OF PROCESS REQ-I/O
==================================================================
    1 PPOCESS   (X)    2 PRIORITY         3 RESP.OPT         4 MSG.LNTH
    5 TO.NODE          6 MSG       (I)    7 ESR-CALL  (P)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ==================================================
POUTER             OPERATING SYSTEM : INTERUPT HANDLING AND ROUTING


ENTRY     OPCODE   PARM      PARM      PARM      COMMENT
========= ======== ========= ========= ========= ========================
          START    ALL       NO
          GIVEN    MSG
          ASSIGN   MSG       CNODE               INDICATE CURRENT NODE CPU
                   CP
          COMPARE  MSG       CNODE     EQ        IS MSG AT DESTINATION ?
                   MSG       TNODE     CONTROL
          ASSIGN   CP        M.ROUTE             CP ROUTE RATE/ LENGTH
                   RT.OVHD
          ASSIGN   MSG       LENGTH              CALCULATE ROUTE OVERHEAD
                   MSG.LNTH
          ASSIGN   CP        M.CS
                   M.OVHD
          ROUTE.OH CONSTANT  M.OVHD              DELAY FOR ROUTING
          CALL     CHLIO     NOWAIT    0         FORWARD MESSAGE WITH I/O
          GIVEN    MSG
          BRANCH   END       100
CONTROL   ENTRY                                 MESSAGE AT DESTINATION
          ROUTE.OH CONSTANT  M.CS
          COMPARE  MSG       TYPE      EQ        IF RESPONSE-UP PRIORITY
```

```
PAGE   15
                $RESP                   HPCONTRL
         ASSIGN MSG      TASKPRI                SET MESSAGE PRIORITY
                PRIORITY
HPCONTRL ENTRY                                  PRIORITY=0 IF UNDEFINED
         CALL   CONTROL  NOWAIT   PRIORITY CONTEXT SWITCH MESSAGE
         GIVEN  MSG
END      ENTRY
         END

LOCAL VARIABLES OF PROCESS ROUTER
================================================================================
    1 MSG       (I)    2 CP                3 RT.OVHD          4 MSG.LNTH
    5 M.OVHD           6 ROUTE.OH  (A)     7 CHLIO     (P)    8 M.CS
    9 PRIORITY        10 CONTROL   (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
TOHOST1


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         CALL     REQ-I/O  WAIT     0
         GIVEN    TO1      PRI      $NOWAIT
                  36       M1       MSG
         END

LOCAL VARIABLES OF PROCESS TOHOST1
================================================================================
    1 REQ-I/O   (P)    2 TO1       (P)    3 PRI              4 M1        (R)
    5 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
TOHOST2


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         CALL     REQ-I/O  WAIT     0
         GIVEN    TO2      PRI      $NOWAIT
                  36       M2       MSG
         END

LOCAL VARIABLES OF PROCESS TOHOST2
================================================================================
    1 REQ-I/O   (P)    2 TO2       (P)    3 PRI              4 M2        (R)
```

```
PAGE   16
    5 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
TOHOST3

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
          CALL     REQ-I/O  WAIT     0
          GIVEN    TO3      PRI      $NOWAIT
                   36       H3       MSG
          END

LOCAL VARIABLES OF PROCESS TOHOST3
=============================================================================
    1 REQ-I/O   (P)    2 TO3       (P)    3 PRI              4 H3        (R)
    5 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
TOHOST4

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
          CALL     REQ-I/O  WAIT     PRI
          GIVEN    TO4      PRI      $NOWAIT
                   36       H4       MSG
          END

LOCAL VARIABLES OF PROCESS TOHOST4
=============================================================================
    1 REQ-I/O   (P)    2 PRI              3 TO4       (P)    4 H4        (R)
    5 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
TOHOST5

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
          CALL     REQ-I/O  WAIT     0
          GIVEN    TO5      PRI      $NOWAIT
                   36       H5       MSG
```

```
      END

LOCAL VARIABLES OF PROCESS TOHOST5
==========================================  ============================
    1 REQ-I/O    (P)    2 TO5        (P)    3 PRI              4 H5        (R)
    5 MSG        (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ============================================================
TOHOST6


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         CALL     REQ-I/O  WAIT     0
         GIVEN    TO6      PPI      $NOWAIT
                  36       H6       MSG
         END

LOCAL VARIABLES OF PPOCESS TOHOST6
==========================================================================
    1 REQ-I/O    (P)    2 TO6        (P)    3 PRI              4 H6        (R)
    5 MSG        (I)
PPOCESS
MNEMONIC           DESCRIPTION
======== ======== ============================================================
TO1

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END

LOCAL VARIABLES OF PROCESS TO1
==========================================================================
    1 MSG        (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ============================================================
TO2

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
```

```
        GIVEN    MSG
        RETURN   MSG
        END
```

LOCAL VARIABLES OF PROCESS T02

```
    1 MSG       (I)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================    ================
TO3
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END
```

LOCAL VARIABLES OF PROCESS T03

```
    1 MSG       (I)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
TO4
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END
```



LOCAL VARIABLES OF PROCESS T04

```
    1 MSG       (I)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
TO5
```

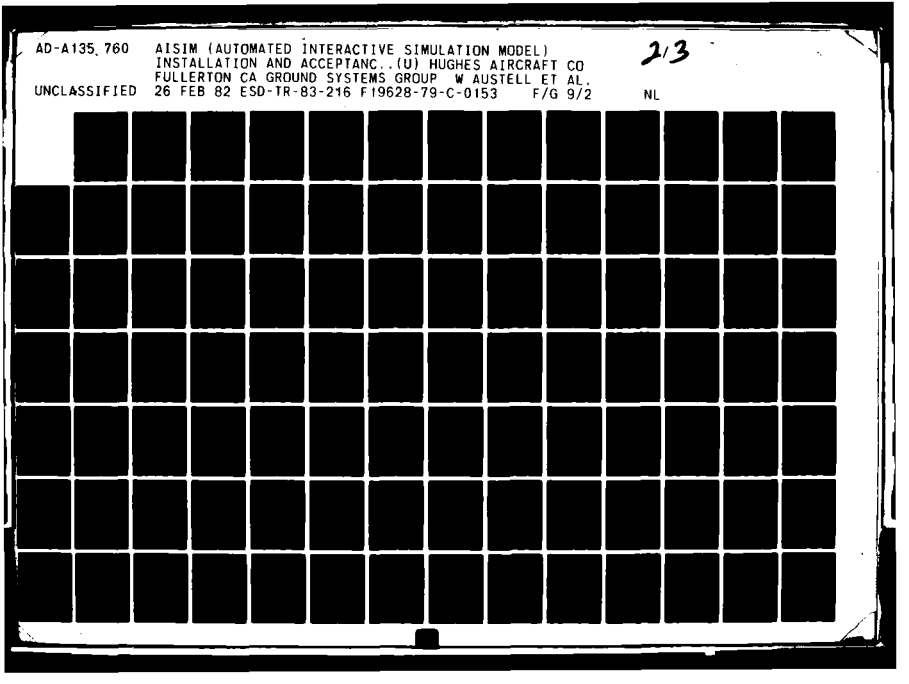
```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
```

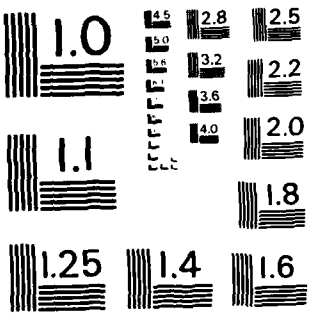
```
        RETURN   MSG
        END

LOCAL VARIABLES OF PROCESS TO5
==============================================================================
    1 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
TO6

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END

LOCAL VARIABLES OF PROCESS TO6
==============================================================================
    1 MSG       (I)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
TRACE             TURN ON TRACE OUTPUT

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         TRACE    ON
         END

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
======== ======== ========================================================
LOADH1            THIS IS THE LOAD FOR HOST 1
         LOAD     NODES
         ======== ======== ======== ========
         H1

         PROCESS           SCHEDULE
         MNEMONIC MAX #    METHOD   MEAN     DELTA    PRIORITY
         ======== ======== ======== ======== ======== ========
         TOHOST2  20       EXPONENT 1370     0        0
```

AD-A135 760 AISIM (AUTOMATED INTERACTIVE SIMULATION MODEL) INSTALLATION AND ACCEPTANC..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP W AUSTELL ET AL.

UNCLASSIFIED 26 FEB 82 ESD-TR-83-216 F19628-79-C-0153 F/G 9/2 NL

2/3






MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A

| | | | | | |
|---|---|---|---|---|---|
| TOHOST3 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST4 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST5 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST6 | 20 | EXPONENT | 1370 | 0 | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LOADH2 | THIS IS THE LOAD FOR HOST 2 |

| LOAD | NODES |
|---|---|
| H2 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TOHOST1 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST3 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST4 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST5 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST6 | 20 | EXPONENT | 1370 | 0 | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LOADH3 | THIS IS THE LOAD FOR HOST 3 |

| LOAD | NODES |
|---|---|
| H3 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TOHOST1 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST2 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST4 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST5 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST6 | 20 | EXPONENT | 1370 | 0 | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LOADH4 | THIS IS THE LOAD FOR HOST 4 |

| LOAD | NODES |
|---|---|
| H4 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| TOHOST1 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST2 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST3 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST5 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST6 | 20 | EXPONENT | 1370 | 0 | 0 |

LOAD
MNEMONIC DESCRIPTION

LOADH5 THIS IS THE LOAD FOR H5

| LOAD | NODES |
|---|---|
| H5 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TOHOST1 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST2 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST3 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST4 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST6 | 20 | EXPONENT | 1370 | 0 | 0 |

LOAD
MNEMONIC DESCRIPTION

LOADH6 THIS IS THE LOAD FOR HOST6

| LOAD | NODES |
|---|---|
| H6 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TOHOST1 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST2 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST3 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST4 | 20 | EXPONENT | 1370 | 0 | 0 |
| TOHOST5 | 20 | EXPONENT | 1370 | 0 | 0 |

SCENARIO DEFINITION....

SCENARIO
MNEMONIC DESCRIPTION

PSCEN

PERIOD

PAGE 22
LENGTH
========
15000

| | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|---|
| ======== | ======== | ======== | ======== | ======== | ======== | ======== | ======== |
| | PEP1 | | | | | | |

| TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY | TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY |
|---|---|---|---|---|---|
| LOADH1 | 0 | 0 | LOADH2 | 0 | 0 |
| LOADH3 | 0 | 0 | LOADH4 | 0 | 0 |
| LOADH5 | 0 | 0 | LOADH6 | 0 | 0 |

**** 0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

# APPENDIX C

## MODEL DESCRIPTIONS FOR ACCEPTANCE TESTING SUPPORT

## TESTDBA.DBF through TESTDBE.DBF

# APPENDIX C

## TEST 1 MODEL - File Verification

## TESTDBA.DBF Listing

```
$$$
```

PAGE 2
ITEMS

| ITEM | DESCRIPTION |
|---|---|
| ITEM6 | |

| ITEM | DESCRIPTION |
|---|---|
| 4ITEM1 | |

| ITEM | DESCRIPTION |
|---|---|
| 4ITEM2 | |

| ITEM | DESCRIPTION |
|---|---|
| 4ITEM3 | |

| ITEM | DESCRIPTION |
|---|---|
| 4ITEM4 | |



QUEUE DEFINITION.....

| QUEUE MNEMONIC | MAXIMUM SIZE | COMMENT |
|---|---|---|

RESOURCE DEFINITION.....

| RESOURCE MNEMONIC | TOTAL # UNITS | INITIAL # UNITS | DESCRIPTION |
|---|---|---|---|

ARCHITECTURE LEGAL PATH DEFINITION

| FROM DEVICE | TO DEVICE | NEXT DEVICE | VIA LINK |
|---|---|---|---|

ACTION DEFINITION.....

| ACTION MNEMONIC | ACTION CLASS | COMMENT |
|---|---|---|

DELAY MAIN

PROCESS DEFINITION.....

PROCESS
MNEMONIC DESCRIPTION
INIT1 TEST CALL BLOCK

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | NO | | |
| | ASSIGN | 1 | | | INITIALIZE COUNTER |
| | | L | | | |
| NEXT | ENTRY | | | | CONTINUE FOR ALL CALLS |
| | COMPARE | L | | GT | TEST VALUE OF COUNTER |
| | | V.COUNT1 | | WAIT | |
| | CALL | PROCESS1 | BLOCK | L | INITIATE PARALLEL INSTANT |
| | GIVEN | L | | | |
| | EVAL | L | ADD | | INCREMENT COUNTER |
| | | L | 2 | | |
| | BRANCH | NEXT | 100 | | BRANCH |
| WAIT | ENTRY | | | | ENTRY |
| | WAIT | | | | SYNCHRONIZE FOR ALL |
| | END | | | | |



LOCAL VARIABLES OF PROCESS INIT1

1 L 2 PROCESS1 (P)

PROCESS
MNEMONIC DESCRIPTION
INIT2 TEST CALL BLOCK AND NOWAIT

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | NO | | |
| | ASSIGN | 1 | | | INITIALIZE COUNTER |
| | | L | | | |
| NEXT | ENTRY | | | | CONTINUE FOR ALL CALLS |
| | COMPARE | L | | GT | TEST VALUE OF COUNTER |
| | | V.COUNT1 | | WAIT | |
| | CALL | PROCESS2 | BLOCK | 0 | INITIATE PARALLEL INSTANT |
| | EVAL | L | ADD | | INCREMENT COUNTER |
| | | L | 1 | | |
| | BRANCH | NEXT | 100 | | BRANCH |

```
PAGE    4
WAIT     ENTRY                                  ENTRY
         CALL     PROCESS2 NOWAIT   0           SYNCHRONIZE FOR ALL
         WAIT
         END

LOCAL VARIABLES OF PROCESS INIT2
================================================================================
    1 L                2 PROCESS2  (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
INIT3             CREATE, SEND, ACTION DELAY FOR 6 ITEMS


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO
NEXT     ENTRY                               ENTRY
         CREATE   ITEM1
         SEND     PROCESS3 ITEM1             SEND AN ITEM TO PROCESS3
         DELAY    CONSTANT 1                 ACTION
         CREATE   ITEM2
         SEND     PROCESS3 ITEM2
         DELAY    CONSTANT 1                 ACTION
         CREATE   ITEM3
         SEND     PROCESS3 ITEM3
         DELAY    CONSTANT 1                 ACTION
         CREATE   ITEM4
         SEND     PROCESS3 ITEM4
         DELAY    CONSTANT 1                 ACTION
         CREATE   ITEM5
         SEND     PROCESS3 ITEM5
         DELAY    CONSTANT 1                 ACTION
         CREATE   ITEM6
         SEND     PROCESS3 ITEM6
         DELAY    CONSTANT 1                 ACTION
         LOOP     NEXT     V.COUNT1          LOOP V.COUNT1 TIMES - NEXT
         END

LOCAL VARIABLES OF PROCESS INIT3
================================================================================
    1 ITEM1     (I)    2 PROCESS3  (P)    3 DELAY     (A)    4 ITEM2     (I)
    5 ITEM3     (I)    6 ITEM4     (I)    7 ITEM5     (I)    8 ITEM6     (I)

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
INIT4A            CREATE, SEND, LOOP 3 ITEMS
```

```
ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START              NO                  
NEXT     ENTRY                                  ENTRY
         CREATE   4ITEM1    4ITEM2    4ITEM3    CREATE 3 ITEMS
         SEND     PROCESS4  4ITEM1    4ITEM2
                  4ITEM3
         LOOP     NEXT      V.COUNT1            LOOP V.COUNT1 TIMES - NEXT
         END
```

LOCAL VARIABLES OF PROCESS INIT4A

```
    1 4ITEM1    (I)    2 4ITEM2    (I)    3 4ITEM3    (I)    4 PROCESS4  (P)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
INIT4B            CREATE,SEND, LOOP WITH DELAY
```

```
ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START              NO
NEXT     ENTRY                                  ENTRY
         DELAY    CONSTANT  10                  ACTION
         CREATE   4ITEM4                        CREATE
         SEND     PROCESS4  4ITEM4
         LOOP     NEXT      V.COUNT1            LOOP V.COUNT1 TIMES - NEXT
         END
```

LOCAL VARIABLES OF PROCESS INIT4B

```
    1 DELAY     (A)    2 4ITEM4    (I)    3 PROCESS4  (P)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
PROCESS1          GIVEN-TIME, ACTION DELAY
```

```
ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START              NO
         GIVEN    TIME
         DELAY    CONSTANT  TIME                ACTION
         END
```

LOCAL VARIABLES OF PROCESS PROCESS1

```
PAGE    6
    1 TIME              2 DELAY     (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
PROCESS2            ACTION DELAY (CONSTANT)


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO
         DELAY    CONSTANT 10
         END

LOCAL VARIABLES OF PROCESS PROCESS2
=====================================================================
    1 DELAY     (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
PROCESS3            RECEIVE AND DESTROY ITEMS -- SERIAL # NO MATCH


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO
         RECEIVE  ITEM1    ITEM2    ITEM3
                  ITEM4    ITEM5    ITEM6
         DESTROY  ITEM1    ITEM2    ITEM3    DESTROY ALL SIX ITEMS
                  ITEM4    ITEM5    ITEM6
         END

LOCAL VARIABLES OF PROCESS PROCESS3
=====================================================================
    1 ITEM1     (I)    2 ITEM2     (I)    3 ITEM3     (I)    4 ITEM4     (I)
    5 ITEM5     (I)    6 ITEM6     (I)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
PROCESS4            RECEIVE AND DESTROY 4 ITEMS -- SERIAL # MATCH


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO       MATCH
         RECEIVE  4ITEM1   4ITEM2   4ITEM3
                  4ITEM4
         DESTROY  4ITEM1   4ITEM2   4ITEM3   DESTROY 4 ITEMS
                  4ITEM4
         END
```

PAGE 7

LOCAL VARIABLES OF PROCESS PROCESS4

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 4ITEM1 | (I) | 2 4ITEM2 | (I) | 3 4ITEM3 | (I) | 4 4ITEM4 (I) |

LOAD DEFINITION.....

LOAD
MNEMONIC DESCRIPTION

LOAD1

| LOAD MNEMONIC | LOAD | NODES | | |
|---|---|---|---|---|

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| INIT1 | 1 | START | | | 0 |
| INIT2 | 1 | START | | | 0 |

SCENARIO DEFINITION....

SCENARIO
MNEMONIC DESCRIPTION

TEST1

PERIOD
LENGTH
100

| | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |

| TRIGGER MNEMONIC | TIME TO SCHEDULE | PRIORITY | TRIGGER MNEMONIC | TIME TO SCHEDULE | PRIORITY |
|---|---|---|---|---|---|
| INIT1 | 0 | 0 | INIT2 | 0 | 0 |
| INIT3 | 0 | 0 | INIT4A | 0 | 0 |
| INIT4B | 0 | 0 | | | |

**** 0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

# APPENDIX C

## TEST 2 MODEL - File Verification

## TESTDBB.DBF Listing

```
$$$
```

PAGE 2

| | ATTR. NAME | INITIAL VALUE | |
|---|---|---|---|
| | COST | 0 | |
| C | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| CHNL | 1 | 1 | RESOURCE FOR CON |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| C1 | 1 | 1 | RESOURCE FOR CON |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |

ARCHITECTURE LEGAL PATH DEFINITION

| FROM DEVICE | TO DEVICE | NEXT DEVICE | VIA LINK |
|---|---|---|---|
| A | B | B | CHNL |
| B | A | A | CHNL |
| B | C | C | C1 |
| C | B | B | C1 |



ACTION DEFINITION.....

| ACTION MNEMONIC | ACTION CLASS | COMMENT |
|---|---|---|
| ADELAY | TEST | DELAY AT PPOCESS A |
| BDELAY | TEST | DELAY IN BPROC |
| REPLY | TEST | TES DELAY IN PROC FOR REPLY |
| TRANSFER | TEST | CHANNEL TRANSFER DELAY |

PROCESS DEFINITION.....

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| APROC | |

```
ENTRY    OPCODE   PARM      PARM      PARM     COMMENT
======== ======== ========  ========  ======== ========================
         START    A
         ALLOC    $CNODE                       TEST $CNODE IN ALLOC CONTX
         ADELAY   CONSTANT  $CLOCK             TEST $CLOCK IN ACTION MEAN
         ADELAY   CONSTANT  0
         ASSIGN   $CNODE                       TEST ASSIGNMENT OF $CNODE
                  L.CNODE
         ASSIGN   $CNODE                       TEST ASSIGNMENT $CNODE
                  V.CNODE
         ASSIGN   BPROC                        TEST PROCESS TO LOCAL
                  NEXT
         ASSIGN   $NODE     NEXT               TEST $NODE EVALUATION
                  LB1
         ASSIGN   $NODE     BPROC              TEST $NODE GLOBAL TO LOCAL
                  LB2
         ASSIGN   $NODE     EPROC              TEST $NXTNODE
                  LB3
         COMPARE  LB1                  EQ      TEST ASSIGNMENT & COMPARE
                  LB2                  N1
         BRANCH   N1        100
         SHOULD NOT EXECUTE
N1       ENTRY
         ASSIGN   $NXTNODE  LB1                TEST $NEXTNODE
                  LB3
         ASSIGN   $NXTNODE  LB2
                  V.NEXT
         COMPARE  LB3                  EQ      TEST $NXTNODE TO LOCAL
                  V.NEXT               N2
         BRANCH   N2        100
N2       ENTRY
         ASSIGN   $CHANNEL  B                  TEST$CHANNEL TO LOCAL RES.
                  L1.CHNL
         ASSIGN   $CHANNEL  LB3                TEST $CHANNEL TO LOCAL
                  L2.CHNL
         ASSIGN   $CHANNEL  V.NEXT             TEST $CHANNEL GLOBAL
                  V.CHNL
         COMPARE  $CNODE               EQ      TEST COMPARE CONTXT $CNODE
                  $CNODE               A1
         BRANCH   A1        100
A1       ENTRY
         COMPARE  L.CNODE              EQ      TEST CONTEXT $CNODE TO LOC
                  $CNODE               A2
         BRANCH   A2        100
A2       ENTRY
         COMPARE  $CNODE               EQ      TEST CONTEXT $CNODE-GLOBAL
                  V.CNODE              A3
         BRANCH   A3        100
```

```
PAGE    4
A3      ENTRY
        COMPARE  L.NXTND           EQ       TEST $NXTNODE GLOBAL-LOCAL
                 V.NXTND           A4
        BRANCH   A4       100
A4      ENTRY
        COMPARE  L1.CHNL           EQ       TEST $CHANNEL COMPARE
                 L2.CHNL           A5
        BRANCH   A5       100
A5      ENTRY
        COMPARE  V.CHNL            EQ       TEST ASSIGN $CHANNEL
                 L1.CHNL           A6
        BRANCH   A6       100
A6      ENTRY
        TEST     L2.CHNL  A7                AVAILABILITY OF $CHNL
        BRANCH   A7       100
A7      ENTRY
        ALLOC    L2.CHNL                   SWITCH BUSY FLAG ON CHNL
        TEST     L2.CHNL  A8               TEST SHOULD BE FAILED
        BRANCH   A8       100
A8      ENTRY
        DEALLOC  $CNODE                    RELEASE CURRENT NODE
        TRANSFER CONSTANT $CLOCK           TRANSFER DATA OVER CHANNEL
        DEALLOC  L2.CHNL                   RELEASE CURRENT CHANNEL
        CALL     BPROC    NOWAIT   0       TEST PARAMETER BINDING
        GIVEN    $CLOCK   $CNODE   $TASK
        SUSPEND                            TEST BINDING OF $TASK
        END
```

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LOCAL VARIABLES OF PPOCESS APROC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ADELAY | (A) | 2 | L.CNODE | | 3 | BPROC | (P) | 4 | NEXT | |
| 5 | LB1 | | 6 | LB2 | | 7 | EPROC | | 8 | LB3 | |
| 9 | V.NEXT | | 10 | B | (R) | 11 | L1.CHNL | | 12 | L2.CHNL | |
| 13 | L.NXTND | | 14 | TRANSFER | (A) | | | | | | |

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| BPROC | |

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
         START    B
         GIVEN    LCLOCK   LNODE    LTASK
         ASSIGN   $NODE    BPPOC              LET CURRENT NODE REGISTER
                  $CNODE
         ALLOC    $CNODE                      MAKE B BUSY
         BDELAY   CONSTANT $CLOCK
         TEST     $CNODE   B1                 TEST AVAILABILITY OF B
```

```
PAGE    5
        BRANCH   B1       100
B1      ENTRY
        DEALLOC  $CNODE
        EVAL     L1       ADD                TEST EVAL CONTEXT  $CLOCK
                 0        $CLOCK
        EVAL     L2       SUBTRACT
                 $CLOCK   0
        COMPARE  L1                  EQ       TEST RESULTS OF EVAL
                 L2                  B2
        BRANCH   B2       100
B2      ENTRY
        EVAL     V.CLOCK1 ADD                EVAL GLOBAL VARIABLE TEST
                 0        $CLOCK
        EVAL     V.CLOCK2 SUBTRACT
                 0        $CLOCK
        EVAL     V.CLOCK2 ABSOLUTE           EVAL ABSOLUTE $CLOCK
                 V.CLOCK2
        COMPARE  V.CLOCK1           EQ       TEST ARITHMETIC CONTEXT
                 V.CLOCK2           B3
        BRANCH   B3       100
B3      ENTRY
        ALLOC    LNODE                      ALLOCATE PASSED PARAMETER
        REPLY    CONSTANT 10
        TEST     LNODE    B4                TEST AVAILABLITY OF RES.
        BRANCH   B4       100
B4      ENTRY
        DEALLOC  LNODE                      FREE UP CHANNEL
        RESUME   LTASK               RESTART PARENT PROCESS
        END
```



```
LOCAL VARIABLES OF PROCESS BPROC
================================================================================
    1 LCLOCK           2 LNODE            3 LTASK            4 BPROC     (P)
    5 BDELAY    (A)    6 L1               7 L2               8 REPLY     (A)

PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
TRACE             TURN ON THE TRACE CAPABILITY

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         TRACE    ON                         ENABLE TRACE OF KEYWORD
         END

LOAD DEFINITION.....
```

```
PAGE    6
LOAD
MNEMONIC          DESCRIPTION
======== ======== ==================================================
LOAD1             INITIATE APROC TEST CASE AT START
         LOAD     NODES
         ======== ======== ======== ========
         A

         PROCESS            SCHEDULE
         MNEMONIC MAX #     METHOD   MEAN     DELTA    PRIORITY
         ======== ======== ======== ======== ======== ========
         APROC    1         START                      0

SCENARIO DEFINITION....

SCENARIO
MNEMONIC          DESCRIPTION
======== ======== ==================================================
SCEN

PERIOD
LENGTH
========
100

         PERIOD   PERIOD   PERIOD   PERIOD   PERIOD   PERIOD   PERIOD
         MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC
======== ======== ======== ======== ======== ======== ======== ========
         ONE

TRIGGER  TIME  TO SCHEDULE TRIGGER  TIME  TO SCHEDULE
MNEMONIC SCHEDULE PRIORITY MNEMONIC SCHEDULE PRIORITY
======== ======== ======== ======== ======== ========
TRACE    0        5        LOAD1    0        0

####    0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION
```

# APPENDIX C

## TEST 3 MODEL - File Verification

## TESTDBC.DBF Listing

```
$$$
```

PAGE 2

| | | | |
|---|---|---|---|
| SEMA | 1 | 1 | SEMA INDICATES IF TRANSMIT BUSY OR NOT |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| STATION1 | 1 | 1 | LOCATION OF TRANSMITTING PROCESS |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| STATION2 | 1 | 1 | LOCATION OF RECEIVING PROCESS |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |

ARCHITECTURE LEGAL PATH DEFINITION

| FROM DEVICE | TO DEVICE | NEXT DEVICE | VIA LINK |
|---|---|---|---|

ACTION DEFINITION.....

| ACTION MNEMONIC | ACTION CLASS | COMMENT |
|---|---|---|
| READ-MSG | MACHINE | DELAY AT RECEIVE TO PROCESS MESSAGE |
| SENDING | MACHINE | DELAY AT TRANSMIT TO DELIVER MESSAGE TO BUFFER |

PROCESS DEFINITION.....

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| RECEIVE | RECEIVE MESSAGES FROM TRANSMIT |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | STATION2 | NO | | |
| | TEST | SEMA | ABORT | | TEST FOR BUFFER USE |
| | REMOVE | FIRST | MSG | BUFFER | REMOVE BY FIFO DISCIPLINE |
| | COMPARE | MSG 0 | | EQ ABORT | WHEN MSG=0 BUFFER IS EMPTY |
| | ASSIGN | MSG ALPHA | LENGTH | | MESSAGE LENGTH IS READ |

```
PAGE    3
        EVAL      MU        MULTIPLY          CALCULATE RECEPTION TIME
                  ALPHA     GAMMA2
        READ-MSG  UNIFORM   MU                TIME TO PROCESS MESSAGE
        DESTROY   MSG                         MSG ELIMINATED FROM SYSTEM
ABORT   ENTRY                                 ENTER FROM COMPARE & TEST
        END

LOCAL VARIABLES OF PROCESS RECEIVE
======================================================================
    1 SEMA      (R)    2 MSG       (I)    3 BUFFER    (Q)    4 ALPHA
    5 MU               6 READ-MSG  (A)    7
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
TRANSMIT          TRANSMITTING MESSAGES TO RECEIVER


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    STATION1 NO
         ALLOC    SEMA                       RESOURCE FOR SENDING MSG
         CREATE   MSG                        INTRODUCE MSG INTO SYSTEM
         EVAL     ALPHA    RANDOM            GENERATE RANDOM NUMBER

         EVAL     ALPHA    MULTIPLY          TWICE AVERAGE TIMES ALPHA
                  ALPHA    GAMMA1
         ASSIGN   ALPHA                      SET MESSAGE LENGTH
                  MSG      LENGTH
         EVAL     MU       MULTIPLY          CALCULATE TRANSMIT TIME
                  ALPHA    GAMMA2
         SENDING  UNIFORM  MU                TIME CONSUMED TRANSMITTING
         ASSIGN   ALPHA                      SET MESSAGE LENGTH
                  MSG      LENGTH
         FILE     MSG      LAST     BUFFER   STORE MSG ON BUFFER
         DEALLOC  SEMA                       RELEASE RESOURCE SEMA
         END

LOCAL VARIABLES OF PROCESS TRANSMIT
======================================================================
    1 SEMA      (R)    2 MSG       (I)    3 ALPHA             4 MU
    5 SENDING   (A)    6                  7 BUFFER    (Q)

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
======== ======== ==================================================
LD1               TRANSMIT RATE=100, EXPONENT, PRIORITY=0
         LOAD     NODES
```

STATION1

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TRANSMIT | 100 | EXPONENT | 1 | 1 | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LD11 | RECEIVE RATE = 1000, INTERVAL,PRIORITY=0,MEAN=1 |

| LOAD | NODES |
|---|---|
| STATION2 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| RECEIVE | 1000 | INTERVAL | | | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LD2 | TRANSMIT RATE=100,EXPONENT,PRIORITY=0,MEAN=2 |

| LOAD | NODES |
|---|---|
| STATION1 | |



| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TRANSMIT | 50 | EXPONENT | 2 | | 0 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|
| LD22 | RECEIVE RATE=1000,INTERVAL,PRIORITY=1,MEAN=.5 |

| LOAD | NODES |
|---|---|
| STATION2 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| RECEIVE | 1000 | INTERVAL | .5 | | 1 |

| LOAD MNEMONIC | DESCRIPTION |
|---|---|

LD3 TRANSMIT RATE=150,EXPONENT,PRIORITY=0,MEAN=.5

| LOAD MNEMONIC | NODES |
|---|---|
| STATION1 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| TRANSMIT | 150 | EXPONENT | .5 | | 0 |

LOAD MNEMONIC DESCRIPTION

LD33 RECEIVE RATE=1000,INTERVAL,PRIORITY=0,MEAN=2

| LOAD MNEMONIC | NODES |
|---|---|
| STATION2 | |

| PROCESS MNEMONIC | MAX # | SCHEDULE METHOD | MEAN | DELTA | PRIORITY |
|---|---|---|---|---|---|
| RECEIVE | 1000 | INTERVAL | 2 | | 0 |

SCENARIO DEFINITION....

SCENARIO MNEMONIC DESCRIPTION

SCNP1 SCENARIO WITH LOAD1 (=LD1),LOAD2 (=LD2),LOAD3 (=LD3)

PERIOD LENGTH

100

| PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|
| 0 | 100 | 200 | 300 | 400 | 500 | 600 |
| PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
| 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 |

| TRIGGER MNEMONIC | TIME TO SCHEDULE | PRIORITY | TRIGGER MNEMONIC | TIME TO SCHEDULE | PRIORITY |
|---|---|---|---|---|---|

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| | | | | | |
|---|---|---|---|---|---|
| LD1 | 0 | 1 | LD11 | 0 | 0 |
| LD2 | 100 | 1 | LD22 | 100 | 0 |
| LD3 | 200 | 1 | LD33 | 200 | 0 |
| LD1 | 300 | 1 | LD11 | 300 | 0 |
| LD22 | 400 | 0 | | | |

**** 0 EPRORS WERE DETECTED DURING MODEL INITIALIZATION

APPDNDIX C

TEST 4 MODEL - File Verification

TESTDBD.DBF Listing

```
$$$
```

QUEUE DEFINITION.....

| QUEUE MNEMONIC | MAXIMUM SIZE | COMMENT |
|---|---|---|

RESOURCE DEFINITION.. ..

| RESOURCE MNEMONIC | TOTAL # UNITS | INITIAL # UNITS | DESCRIPTION |
|---|---|---|---|
| AB1 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | OSOVHD | 0 | |
| | SPEED | 5000 | |
| AB2 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | OSOVHD | 0 | |
| | SPEED | 5000 | |
| CHQ | 1 | 1 | COMMAND HEAD-QUARTERS |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | OSOVHD | 0 | |
| | SPEED | 5000 | |
| CH1.A | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. NAME | INITIAL VALUE | |
| | COST | 0 | |
| | RATE | VRATE | |
| CH1.B | 1 | 1 | RESOURCE FOR CHANNEL CONNECTOR |
| | ATTR. NAME | INITIAL VALUE | |

```
                ======== ========
                COST     0
                RATE     VRATE

CH2.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH2.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH3.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     0.4069

CH3.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     0.4060

CH5.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     0.4069

CH5.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     0.4069

CH6.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
```

```
                ======== ========
                COST     0
                RATE     VRATE

CH6.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH7.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH7.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH8.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH8.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH9.A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                COST     0
                RATE     VRATE

CH9.B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
```

| | | | |
|---|---|---|---|
| | ======== | ======== | |
| | COST | 0 | |
| | RATE | VRATE | |
| DK1 | 1 | 1 | DISK FOR COMMAND HEAD-QUARTERS |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | LATDELTA | 15 | |
| | LATENCY | 15 | |
| | OSOVHD | 0 | |
| | SEEK | TIME1 | |
| | SPEED | 20000 | |
| HQ | 1 | 1 | HEAD-QUARTERS |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | OSOVHD | 0 | |
| | SPEED | 1000 | |
| L3 | 1 | 1 | RESOURCE FOR NODE |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | OSOVHD | 0 | |
| | SPEED | 1000 | |
| SW1 | 1 | 1 | SWITCH BETWEEN AIRBASES AND OTHER TWO SWITCHES (1&2) |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | SPEED | 1000 | |
| SW2 | 1 | 1 | SWITCH BETWEEN SWITCH 1 & 3 AND HQ |
| | ATTR. | INITIAL | |
| | NAME | VALUE | |
| | ======== | ======== | |
| | COST | 0 | |
| | NETINSTR | 80 | |
| | SPEED | 1000 | |

PAGE 6

SW3 1 1 SWITCH BETWEEN SWITCH 1 & 2 AND CHQ

| ATTR. NAME | INITIAL VALUE |
|---|---|
| COST | 0 |
| NETINSTR | 80 |
| SPEED | 1000 |

ARCHITECTURE LEGAL PATH DEFINITION

| FROM DEVICE | TO DEVICE | NEXT DEVICE | VIA LINK |
|---|---|---|---|
| AB1 | AB1 | SW1 | CH1.A |
| AB1 | AB2 | SW1 | CH1.A |
| AB1 | CHQ | SW1 | CH1.A |
| AB1 | DK1 | SW1 | CH1.A |
| AB1 | HQ | SW1 | CH1.A |
| AB1 | L3 | SW1 | CH1.A |
| AB1 | SW1 | SW1 | CH1.A |
| AB1 | SW2 | SW1 | CH1.A |
| AB1 | SW3 | SW1 | CH1.A |
| AB2 | AB1 | SW1 | CH2.A |
| AB2 | CHQ | SW1 | CH2.A |
| AB2 | DK1 | SW1 | CH2.A |
| AB2 | HQ | SW1 | CH2.A |
| AB2 | L3 | SW1 | CH2.A |
| AB2 | SW1 | SW1 | CH2.A |
| AB2 | SW2 | SW1 | CH2.A |
| AB2 | SW3 | SW1 | CH2.A |
| CHQ | AB1 | SW3 | CH8.A |
| CHQ | AB2 | SW3 | CH8.A |
| CHQ | DK1 | DK1 | CH9.A |
| CHQ | HQ | SW3 | CH8.A |
| CHQ | L3 | SW3 | CH8.A |
| CHQ | SW1 | SW3 | CH8.A |
| CHQ | SW2 | SW3 | CH8.A |
| CHQ | SW3 | SW3 | CH8.A |
| DK1 | AB1 | CHQ | CH9.B |
| DK1 | AB2 | CHQ | CH9.B |
| DK1 | CHQ | CHQ | CH9.B |
| DK1 | HQ | CHQ | CH9.B |
| DK1 | L3 | CHQ | CH9.B |
| DK1 | SW1 | CHQ | CH9.B |
| DK1 | SW2 | CHQ | CH9.B |
| DK1 | SW3 | CHQ | CH9.B |
| HQ | AB1 | SW2 | CH7.A |
| HQ | AB2 | SW2 | CH7.A |
| HQ | CHQ | SW2 | CH7.A |

| | | | |
|---|---|---|---|
| HQ | DK1 | SW2 | CH7.A |
| HQ | L3 | L3 | CH6.A |
| HQ | SW1 | SW2 | CH7.A |
| HQ | SW2 | SW2 | CH7.A |
| HQ | SW3 | SW2 | CH7.A |
| L3 | AB1 | HQ | CH6.B |
| L3 | AB2 | HQ | CH6.B |
| L3 | CHQ | HQ | CH6.B |
| L3 | DK1 | HQ | CH6.B |
| L3 | HQ | HQ | CH6.B |
| L3 | SW1 | HQ | CH6.B |
| L3 | SW2 | HQ | CH6.B |
| L3 | SW3 | HQ | CH6.B |
| SW1 | AB1 | AB1 | CH1.B |
| SW1 | AB2 | AB2 | CH2.B |
| SW1 | CHQ | SW2 | CH3.A |
| SW1 | DK1 | SW2 | CH3.A |
| SW1 | HQ | SW2 | CH3.A |
| SW1 | L3 | SW2 | CH3.A |
| SW1 | SW2 | SW2 | CH3.A |
| SW1 | SW3 | SW2 | CH3.A |
| SW2 | AB1 | SW1 | CH3.B |
| SW2 | AB2 | SW1 | CH3.B |
| SW2 | CHQ | SW3 | CH5.A |
| SW2 | DK1 | SW3 | CH5.A |
| SW2 | HQ | HQ | CH7.B |
| SW2 | L3 | HQ | CH7.B |
| SW2 | SW1 | SW1 | CH3.B |
| SW2 | SW3 | SW3 | CH5.A |
| SW3 | AB1 | SW2 | CH5.B |
| SW3 | AB2 | SW2 | CH5.B |
| SW3 | CHQ | CHQ | CH8.B |
| SW3 | DK1 | CHQ | CH8.B |
| SW3 | HQ | SW2 | CH5.B |
| SW3 | L3 | SW2 | CH5.B |
| SW3 | SW1 | SW2 | CH5.B |
| SW3 | SW2 | SW2 | CH5.B |

ACTION DEFINITION.....

| *ACTION* MNEMONIC | *ACTION* CLASS | COMMENT |
|---|---|---|
| CHQGD.OH | MACHINE | CHQ PROCESSING OF GRAPHICS REQUEST |
| CHQHD.OH | MACHINE | CHQ PROCESSING OF HARD COPY REQUEST |
| CS.OH | CPU | PROCESSING TO PERFORM CONTEXT SWITCHING |
| DUMMYACT | MACHINE | ACTION TO ENABLE CYCLIC PROGRAM CYCLES |
| FORMAT | MACHINE | TIME USED TO FORMAT PLANS FROM CHQ |
| HQ.OH | MACHINE | HQ PROCESSING OF MESSAGE |

```
LATENCY   MACHINE   LATENCY PAUSE SUBSEQUENT TO SEEK
OVERHEAD  MACHINE   TIME FOR GENERAL USE
ROUTE.OH  CPU       PROCESSING DELAY TO ROUTE A MESSAGE
SEEK      MACHINE   SEEKING INFORMATION ON DISK
UPDATE    AIRBASE   UPDATING INFO SINCE PREVIOUS BROADCAST TO OTHER NODES
XFER      MACHINE   TRANSFER INFORMATION SOUGHT ON DISK
XFER.OH   CHANNEL   PROCESSING DELAY TO ROUTE A MESSAGE OVER A CHANNEL

PROCESS DEFINITION.....

PROCESS
MNEMONIC          DESCRIPTION
========= ========= ==================================================
AB-DATA           AIR BASE STATUS BROADCAST TO ALL OTHER NODES


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START               NO
          GIVEN     MSG
          RETURN    MSG
          CALL      REQ-I/O   NOWAIT    10        PROCESS REQUEST TO CHQ
          GIVEN     CHQ-DATA  10        $NOWAIT
                    750       CHQ       MSG
          CALL      REQ-I/O   NOWAIT    10        PROCESS REQUEST TO HQ
          GIVEN     HQ-DATA   10        $NOWAIT
                    750       HQ        MSG
          ASSIGN    $CNODE                        CURRENT NODE
                    CNODE
          COMPARE   CNODE               EQ        TEST FOR CURRENT NODE
                    AB1                 AB1
          CALL      REQ-I/O   NOWAIT    10        PROCESS REQUEST TO AB1
          GIVEN     ABUPDATE  10        $NOWAIT
                    750       AB1       MSG
          BRANCH    END       100                 BRANCH TO THE END
AB1       ENTRY                                   ENTRY FROM COMPARE NODE
          CALL      REQ-I/O   NOWAIT    10        PROCESS REQUEST TO AB2
          GIVEN     ABUPDATE  10        $NOWAIT
                    750       AB2       MSG
END       ENTRY                                   ENTRY FROM REQUEST TO AB1
          END

LOCAL VARIABLES OF PROCESS AB-DATA
==========================================================================
    1 MSG       (I)    2 REQ-I/O   (P)    3 CHQ-DATA  (P)    4 CHQ       (R)
    5 HQ-DATA   (P)    6 HQ        (R)    7 CNODE             8 AB1       (R)
    9 ABUPDATE  (P)   10 AB2       (R)
PROCESS
MNEMONIC          DESCRIPTION
```

AB-REQ — AIRBASE REQUEST FOR PLANS REPORT FROM CHQ

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | NO | | |
| | GIVEN | MSG | | | |
| | RETURN | MSG | | | |
| | CALL | REQ-I/O | WAIT | 5 | PROCESS REQUEST TO CHQ |
| | GIVEN | PLANS | 5 | $WAIT | |
| | | 200 | CHQ | MSG | |
| | END | | | | |

LOCAL VARIABLES OF PROCESS AB-REQ

1 MSG (I) 2 REQ-I/O (P) 3 PLANS (P) 4 CHQ (R)

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| ABUPDATE | UPDATE DATA FROM AIRBASE |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | NO | | |
| | GIVEN | MSG | | | |
| | RETURN | MSG | | | |
| | UPDATE | CONSTANT | 0.1 | | TIME CONSUMED IN UPDATING |
| | END | | | | |

LOCAL VARIABLES OF PROCESS ABUPDATE

1 MSG (I) 2 UPDATE (A)

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| CHLIO | FULL AND HALF DUPLEX CHANNEL LOGIC |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | ALL | NO | | |
| | GIVEN | MSG | | | |
| | ASSIGN | MSG | CNODE | | SET INTERNAL NODE CURRENT |
| | | $CNODE | | | |
| | ASSIGN | MSG | TNODE | | GET DESTINATION NODE (MSG) |
| | | TO.NODE | | | |

```
        ASSIGN   $NXTNODE TO.NODE            SET NEXT NODE TO DEST N
                 NXT.NODE
        ASSIGN   $CHANNEL TO.NODE            GET CHANNEL TO NEXT NODE
                 CHANNEL
        ALLOC    CHANNEL                     OBTAIN CHANNEL FOR X FER
        ASSIGN   CHANNEL  RATE               WHAT IS RATE IN SEC/BYTE?
                 VSPEED
        ASSIGN   MSG      LENGTH             MESSAGE LENGTH IN BYTES
                 VLENGTH
        EVAL     VM.OVHD  MULTIPLY           CALCULATE TRANSFER TIME
                 VSPEED   VLENGTH
        XFER.OH  CONSTANT VM.OVHD            DELAY DUE TO TRANSFER TIME
        ASSIGN   NXT.NODE                    MESSAGE RESIDES IN NEXT
                 MSG      CNODE
        ASSIGN   NXT.NODE                    SET INTERNAL NODE REGISTER
                 $CNODE
        DEALLOC  CHANNEL                     FREE UP CHANNEL AFTER XFER
        CALL     IHANDLER NOWAIT   0         INDICATE INTERUPT IN NEXT
        GIVEN    MSG
        END
```

LOCAL VARIABLES OF PROCESS CHLIO

| | | | | |
|---|---|---|---|---|
| 1 MSG (I) | 2 TO.NODE | 3 NXT.NODE | 4 CHANNEL | |
| 5 VSPEED | 6 VLENGTH | 7 VM.OVHD | 8 XFER.OH | (A) |
| 9 IHANDLER (P) | | | | |

PROCESS

| MNEMONIC | DESCRIPTION |
|---|---|
| CHQ-DATA | CHQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES |

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
         START             NO
         GIVEN    MSG
         RETURN   MSG
         ASSIGN   MSG      LENGTH             MAKE MSG-LENGTH = V.LENGTH
                  V.LENGTH
         EVAL     V.TIME   MULTIPLY           EVALUATE MSG PROCESS TIME
                  .015     V.LENGTH
         UPDATE   CONSTANT V.TIME             PROCESSING TIME CONSUMED
         END
```

LOCAL VARIABLES OF PROCESS CHQ-DATA

| | | | | |
|---|---|---|---|---|
| 1 MSG (I) | 2 V.LENGTH | 3 V.TIME | 4 UPDATE | (A) |

PROCESS

```
PAGE   11
MNEMONIC          DESCRIPTION
======== ======== ==================================================
CONTROL           OPERATING SYSTEM : CONTEXT SWITCHING

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE             CURRENT NODE IS CPU
                  CP
         ALLOC    CP                         SIGNAL CURRENT CPU BUSY
         ASSIGN   CP       OSOVHD            MEAN CONTEXT SWITCH TIME
                  M.OVHD
         CS.OH    CONSTANT M.OVHD            DELAY CONTEXT SWITCH TIME
         COMPARE  MSG      TYPE     EQ       IF RESPONSE- RESUME PARENT
                  $REQ              REQUEST
         ASSIGN   MSG      PTASK             TASK TO RESUME IS IN MSG
                  TASK
         RESUME   TASK              QUEUE UP TASK FOR NODE
         BRANCH   DESTROY  100               END MESSAGE LIFE
REQUEST  ENTRY                               ELSE-> CALL REQUESTED PROC
         ASSIGN   MSG      RTASK             EXECUTE THE CALLED PROCESS
                  PROCESS
         CALL     PROCESS  WAIT     0        WAIT UNTIL COMPLETE
         GIVEN    MSG
         RETURN   MSG
         COMPARE  MSG      RESPONSE EQ       IF WAIT -> SEND MSG BACK
                  $NOWAIT           DESTROY
         ASSIGN   $RESP                      CHANGE MSG RESPONSE TYPE
                  MSG      TYPE
         ASSIGN   MSG      FNODE             SWITCH FROM AND TO NODES
                  MSG      TNODE
         ASSIGN   MSG      CNODE             CURRENT NODE IS FROM NODE
                  MSG      FNODE
         CALL     CHLIO    WAIT     0        RETURN MESSAGE TO ORIGIN
         GIVEN    MSG
         BRANCH   END      100
DESTROY  ENTRY                               TERMINATE MESSAGE AT DEST.
         DESTROY  MSG                        NO RESPONSE-TERMINATE MSG
END      ENTRY
         DEALLOC  CP                         INDICATE CP SWITCH DONE
         END

LOCAL VARIABLES OF PROCESS CONTROL
==================================================================
    1 MSG       (I)    2 CP              3 M.OVHD          4 CS.OH     (A)
    5 TASK             6 PROCESS   (X)   7 CHLIO     (P)
PROCESS
```

| MNEMONIC | DESCRIPTION |
|---|---|
| DISK.OP | OPERATION OF DISK |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | NO | | |
| | GIVEN | LENGTH | DISK | | |
| | ASSIGN | DISK | SPEED | | MAKE DISK SPEED = V.SPEED |
| | | V.SPEED | | | |
| | EVAL | XFERTIME | DIVIDE | | TRANSFER TIME CALCULATED |
| | | LENGTH | V.SPEED | | |
| | ALLOC | DISK | | | DISK ALLOCATED |
| | ASSIGN | DISK | SEEK | | MAKE SEEKTIME = SEEK |
| | | SEEKTIME | | | |
| | SEEK | UNIFORM | SEEKTIME | SEEKTIME | TIME FOR SEEK IS CONSUMED |
| | ASSIGN | DISK | LATENCY | | MAKE DISKLATENCY=LATETIME |
| | | LATETIME | | | |
| | LATENCY | UNIFORM | LATETIME | LATETIME | TIME CONSUMED FOR LATENCY |
| | XFER | CONSTANT | XFERTIME | | TRANSFER TIME CONSUMED |
| | DEALLOC | DISK | | | DISK RESOURCE DEALLOCATED |
| | END | | | | |

LOCAL VARIABLES OF PROCESS DISK.OP

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 LENGTH | | 2 DISK | | 3 V.SPEED | | 4 XFERTIME | | |
| 5 SEEKTIME | | 6 SEEK | (A) | 7 LATETIME | | 8 LATENCY | | (A) |
| 9 XFER | (A) | | | | | | | |

PROCESS

| MNEMONIC | DESCRIPTION |
|---|---|
| ESR-CALL | OPERATING SYSTEM: EXECUTIVE SERVICE REQUEST (CALL ) |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | ALL | NO | | |
| | GIVEN | MSG | | | |
| | ASSIGN | $TASK | | | $TASK= INSTANCE TO RESUME |
| | | MSG | PTASK | | |
| | ASSIGN | MSG | RESPONSE | | OPTION= $WAIT OF $NOWAIT |
| | | RESP.OPT | | | |
| | CALL | ROUTER | WAIT | 0 | INITIATE ROUTING TO DEST. |
| | GIVEN | MSG | | | |
| | COMPARE | RESP.OPT | | EQ | SHOULD PARENT SUSPEND ? |
| | | $NOWAIT | | END | |
| | SUSPEND | | | | PROCESS CALLED WAIT |
| END | ENTRY | | | | CONTINUE OR RESUME POINT |

```
        END

LOCAL VARIABLES OF PROCESS ESR-CALL
=================================================================
    1 MSG       (I)    2 RESP.OPT          3 ROUTER    (P)
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ============================================
HQ-DATA           HQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES


ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START              NO
          GIVEN    MSG
          RETURN   MSG
          ASSIGN   MSG      LENGTH             MAKE MSG-LENTH = V.LENGTH
                   V.LENGTH
          EVAL     V.TIME   MULTIPLY           EVALUATE MSG PROCESS TIME
                   .015     V.LENGTH
          UPDATE   CONSTANT V.TIME             PROCESSING TIME CONSUMED
          END

LOCAL VARIABLES OF PROCESS HQ-DATA
=================================================================
    1 MSG       (I)    2 V.LENGTH          3 V.TIME            4 UPDATE    (A)

PROCESS
MNEMONIC          DESCRIPTION
========= ======== ============================================
HQ-REQ            HQ REQUEST FOR STATUS DISPLAY FROM CHQ

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    L3       NO
          GIVEN    MSG
          RETURN   MSG
          CALL     REQ-I/O  WAIT     4        MAKES I/O REQUEST TO CHQ
          GIVEN    PLANS    4        $WAIT
                   200      CHQ      MSG
          END

LOCAL VARIABLES OF PROCESS HQ-REQ
=================================================================
    1 MSG       (I)    2 REQ-I/O   (P)    3 PLANS     (P)    4 CHQ       (R)

PROCESS
MNEMONIC          DESCRIPTION
```

IHANDLER OPERATING SYSTEM : INTERUPT HANDLING AND ROUTING

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | ALL | NO | | |
| | GIVEN | MSG | | | |
| | ASSIGN | MSG | CNODE | | INDICATE CURRENT NODE CPU |
| | | CP | | | |
| | COMPARE | MSG | CNODE | EQ | IS MSG AT DESTINATION ? |
| | | MSG | TNODE | CONTROL | |
| | ASSIGN | CP | NETINSTR | | MONITOR OVERHEAD FOR PLOT |
| | | M.OVHD | | | |
| | ALLOC | CP | | | OBTAIN CP-HANDLE INTERUPT |
| | ROUTE.OH | CONSTANT | M.OVHD | | DELAY FOR ROUTING |
| | DEALLOC | CP | | | RELEASE CPU TO OTHERS |
| | CALL | CHLIO | NOWAIT | 0 | FORWARD MESSAGE WITH I/O |
| | GIVEN | MSG | | | |
| | BRANCH | END | 100 | | |
| CONTROL | ENTRY | | | | MESSAGE AT DESTINATION |
| | COMPARE | MSG | TYPE | EQ | IF RESPONSE-UP PRIORITY |
| | | $RESP | | HPCONTRL | |
| | ASSIGN | MSG | TASKPRI | | SET MESSAGE PRIORITY |
| | | PRIORITY | | | |
| HPCONTRL | ENTRY | | | | PRIORITY=0 IF UNDEFINED |
| | CALL | CONTPOL | NOWAIT | PRIORITY | CONTEXT SWITCH MESSAGE |
| | GIVEN | MSG | | | |
| END | ENTRY | | | | |
| | END | | | | |

LOCAL VARIABLES OF PROCESS IHANDLER

| | | | | |
|---|---|---|---|---|
| 1 MSG | (I) | 2 CP | 3 M.OVHD | 4 ROUTE.OH (A) |
| 5 CHLIO | (P) | 6 PRIORITY | 7 CONTPOL (P) | |

PROCESS

| MNEMONIC | DESCRIPTION |
|---|---|
| PLANS | REQUEST FOR PLANS FROM CHQ |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | CHQ | NO | | |
| | GIVEN | MSG | | | |
| | RETURN | MSG | | | |
| | ASSIGN | MSG | LENGTH | | MAKE MSG LENGTH = V.LENGTH |
| | | V.LENGTH | | | |
| | EVAL | V.TIME | MULTIPLY | | EVALUATE MSG PROCESS TIME |

```
                .01     V.LENGTH
        FORMAT  CONSTANT V.TIME          TIME USED TO FORMAT PLANS
        CALL    DISK.OP  WAIT     10     CALLING PROCESS DISK.OP
        GIVEN   10000    DK1
        ASSIGN  10000                    AUGMENT MSG TO 10000
                V.LENGTH
        END

LOCAL VARIABLES OF PROCESS PLANS
================================================================
    1 MSG       (I)    2 V.LENGTH        3 V.TIME          4 FORMAT    (A)
    5 DISK.OP   (P)    6 DK1       (R)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
REQ-I/O           GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    PROCESS  PRIORITY RESP.OPT
                  MSG.LNTH TO.NODE  MSG
         CREATE   MSG                       CREATE MESSAGE DATA TO RTE
         ASSIGN   $CNODE                    INDICATE CURRENT NODE
                  MSG      CNODE
         ASSIGN   $CNODE                    INDICATE CURRENT NODE FROM
                  MSG      FNODE
         ASSIGN   PROCESS                   INDICATE REQUESTED PROCESS
                  MSG      RTASK
         ASSIGN   PRIORITY                  INDICATE RELATIVE PRIORITY
                  MSG      TASKPRI
         ASSIGN   RESP.OPT                  $NOWAIT OR $ WAIT ON CALL
                  MSG      RESPONSE
         ASSIGN   MSG.LNTH                  INDICATE LENGTH IN BYTES
                  MSG      LENGTH
         COMPARE  TO.NODE           EQ      WHERE DOES PROCESS RESIDE
                  $NO               END
         COMPARE  TO.NODE           EQ      DEFAULT TO NODE SELECT
                  $YES              GETNODE
         ASSIGN   TO.NODE                   ELSE-> NODE IS GIVEN
                  MSG      TNODE
         BRANCH   END      100
GETNODE  ENTRY                              DETERMINE NODE FROM PROC.
         ASSIGN   $NODE    PROCESS          $NODE OF PROCESS IN DEF
                  MSG      TNODE
END      ENTRY                              SEND MSG FOR SERVICE
         CALL     ESP-CALL WAIT     0       EXECUTIVE SERVICING OF MSG
         GIVEN    MSG
```

```
        END

LOCAL VARIABLES OF PROCESS REQ-I/O
================================================================================
    1 PROCESS   (X)    2 PRIORITY          3 RESP.OPT          4 MSG.LNTH
    5 TO.NODE          6 MSG       (I)     7 ESR-CALL  (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
ROUTER            OPERATING SYSTEM : INTERUPT HANDLING AND ROUTING


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE              INDICATE CURRENT NODE CPU
                  CP
         COMPARE  MSG      CNODE    EQ        IS MSG AT DESTINATION ?
                  MSG      TNODE    CONTROL
         ASSIGN   CP       NETINSTR           MONITOR OVERHEAD FOR PLOT
                  M.OVHD
         ROUTE.OH CONSTANT M.OVHD             DELAY FOR ROUTING
         CALL     CHLIO    NOWAIT   0         FORWARD MESSAGE WITH I/O
         GIVEN    MSG
         BRANCH   END      100
CONTROL  ENTRY                                MESSAGE AT DESTINATION
         COMPARE  MSG      TYPE     EQ        IF RESPONSE-UP PRIORITY
                  $RESP             HPCONTRL
         ASSIGN   MSG      TASKPRI            SET MESSAGE PRIORITY
                  PRIORITY
HPCONTRL ENTRY                                PRIORITY=0 IF UNDEFINED
         CALL     CONTROL  NOWAIT   PRIORITY CONTEXT SWITCH MESSAGE
         GIVEN    MSG
END      ENTRY
         END

LOCAL VARIABLES OF PROCESS ROUTER
================================================================================
    1 MSG       (I)    2 CP                3 M.OVHD            4 ROUTE.OH  (A)
    5 CHLIO     (P)    6 PRIORITY          7 CONTROL   (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
TRACE             TURN ON TRACE OUTPUT

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
```

```
PAGE   17
         START    ALL       NO
         COMPARE  V.TRACE             EQ       TEST IF FLAG SET FOR TRACE
                  0                   NOTRACE
         TRACE    ON
NOTRACE  ENTRY
         END

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
======== ======== ==================================================
ABLOAD            COMMUNICATIONS FROM AIRBASES
         LOAD     NODES
         ======== ======== ======== ========
         AB1      AB2


         PROCESS           SCHEDULE
         MNEMONIC MAX #    METHOD   MEAN     DELTA    PRIORITY
         ======== ======== ======== ======== ======== ========
         AB-DATA  100000   INTERVAL ABDRATE            10
         AB REQ   100000   EXPONENT ABRRATE            5
LOAD
MNEMONIC          DESCRIPTION
======== ======== ==================================================
HQLOAD            REQUEST DATA FROM CHQ
         LOAD     NODES
         ======== ======== ======== ========
         L3


         PROCESS           SCHEDULE
         MNEMONIC MAX #    METHOD   MEAN     DELTA    PRIORITY
         ======== ======== ======== ======== ======== ========
         HQ-REQ   100000   EXPONENT HQRRATE            4

SCENARIO DEFINITION....

SCENARIO
MNEMONIC          DESCRIPTION
======== ======== ==================================================
TEST01            SCENARIO FOR MINI MITRE 1

PERIOD
LENGTH
========
360000
```

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| PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|
| 8 | 9 | 10 | | | | |

| TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY | TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY |
|---|---|---|---|---|---|
| ADLOAD | 0 | 0 | TRACE | 0 | 0 |
| HQLOAD | 0 | 0 | | | |

**** 0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

# APPENDIX C

## TEST 5 MODEL - File Verification

## TESTDBE.DBF Listing

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$                    S I M U L A T I O N   R E P O R T                          $
$                              AISIM VERSION 2.0                                  $
$                          HUGHES AIRCRAFT COMPANY                                $
$                                08/03/81                                         $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
GLOBAL CONSTANT DEFINITION.....

CONSTANT INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================
C100     100.0    TEST CONSTANT VALUE 100
C5       5.0      TEST CONSTANT VALUE 5
C50      50.0     TEST CONSTANT VALUE 50

TABLE DEFINITION....

TABLE
MNEMONIC TYPE     DESCRIPTION
======== ======== ============================
ALPHATBL A        ALPHA TABLE TEST FOR CYCLING THROUGH OFDS

         X-VALUE  Y-VALUE
         ======== ========
         06       OFD6
         07       OFD7
         08       OFD8
         09       OFD9
         10       OFD10
TABLE
MNEMONIC TYPE     DESCRIPTION
======== ======== ============================
TCON     C        TEST CONTINUOUS TABLE

         X-VALUE  Y-VALUE
         ======== ========
         0.0      0.0
         100.0    10.0
         1000.0   100.0
         200.0    20.0
         300.0    30.0
         400.0    40.0
         500.0    50.0
         600.0    60.0
         700.0    70.0
         800.0    80.0
         900.0    90.0
```

TABLE

| MNEMONIC | TYPE | DESCRIPTION |
|---|---|---|
| TDIS | D | TEST DISCRETE TABLE |

| X-VALUE | Y-VALUE |
|---|---|
| 0.0 | 0.0 |
| 100.0 | 10.0 |
| 1000.0 | 100.0 |
| 200.0 | 20.0 |
| 300.0 | 30.0 |
| 400.0 | 40.0 |
| 500.0 | 50.0 |
| 600.0 | 60.0 |
| 700.0 | 70.0 |
| 800.0 | 80.0 |
| 900.0 | 90.0 |

GLOBAL VARIABLE DEFINITION.....

| VARIABLE MNEMONIC | INITIAL VALUE | COMMENT |
|---|---|---|
| VABS | 10.0 | TEST EVAL ABSOLUTE RESULT |
| VADD | 10.0 | TEST EVAL ADD RESULT |
| VARCOS | 2.0 | TEST EVAL ARCOSINE RESULT |
| VARCSIN | 1.141593 | TEST EVAL ARCSINE RESULT |
| VARCTAN | -1.14159 | TEST EVAL ARCTAN RESULT |
| VBETA | 10.0 | TEST EVAL BETA RESULT |
| VBIN | 0.5 | TEST EVAL BINOMIAL RESULT |
| VCOS | -.416147 | TEST EVAL COSINE RESULT |
| VCTABLE | 50.0 | TEST EVAL CONTINUOUS TABLE RESULT |
| VDIV | 10.0 | TEST EVAL DIVIDE RESULT |
| VDTABLE | 50.0 | TEST EVAL DISCRETE TABLE RESULT |
| VERLANG | 100.0 | TEST EVAL ERLANG DISTRIBUTION |
| VEXP | 10.0 | TEST EVAL EXPONENTIAL RESULT |
| VEXPE | 100.0 | TEST EVAL EXPONENT E RESULT |
| VEXP10 | 100.0 | TEST EVAL EXPONENT 10 RESULT |
| VGAMMA | 10.0 | TEST EVAL GAMMA RESULT |
| VLOGE | 4.605170 | TEST EVAL LOG E RESULT |
| VLOGN | 10.0 | TEST EVAL LOGNORMAL RESULT |
| VLOG10 | 2.0 | TEST EVAL LOG 10 RESULT |
| VMULT | 10.0 | TEST EVAL MULTIPLY RESULT |
| VNBUSYQ | 0 | TEST ASSIGN NBUSYQ |
| VNIDLEQ | 0 | TEST ASSIGN NIDLEQ |
| VNORMAL | 10.0 | TEST EVAL NORMAL RESULT |
| VNWAITQ | 0 | TEST ASSIGN NWAITQ |
| VPOISSON | 110.0 | TEST EVAL POISSON RESULT |

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```
VPOWER   10.0      TEST EVAL POWER RESULT
VRAN     0.5       TEST EVAL RANDOM RESULT
VSIN     0.909297  TEST EVAL SINE RESULT
VSQRT    10.0      TEST EVAL SQRT RESULT
VSUB     10.0      TEST EVAL SUBTRACT RESULT
VTAN     -2.18504  TEST EVAL TANGENT RESULT
VUNIFORM 10.0      TEST EVAL UNIFORM RESULT
VWEIBULL 10.0      TEST EVAL WEIBULL RESULT

ITEM DEFINITION.....


QUEUE DEFINITION.....

QUEUE    MAXIMUM
MNEMONIC   SIZE   COMMENT
======== ======== ==================================================

RESOURCE DEFINITION.....

RESOURCE TOTAL    INITIAL
MNEMONIC # UNITS  # UNITS  DESCRIPTION
======== ======== ======== ========================================
RES1              2.0      TEST RESOURCE 1
         ATTR.    INITIAL
         NAME     VALUE
         ======== ========
         COST     0

ARCHITECTURE LEGAL PATH DEFINITION

FROM     TO       NEXT     VIA
DEVICE   DEVICE   DEVICE   LINK
======== ======== ======== ========

ACTION DEFINITION.....

ACTION   ACTION
MNEMONIC CLASS    COMMENT
======== ======== ==================================================
EVALUATE MACHINE  TEST EVAL FUNCTIONS
PROCESS  MACHINE  TEST DISTRIBUTION FUNCTIONS

PROCESS DEFINITION.....

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
OFDINIT           OFD INITIATOR FOR 6 THROUGH 10
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO
         ASSIGN   6                          LOOP COUNTER AND TBL INDEX
                  COUNTER
NEXT     ENTRY                               CYCLE FOR ALL OFDS
         COMPARE  COUNTER           GT
                  10                END
         EVAL     OFD      ALPHATBL         INDEX INTO ALPHA TABLE
                  COUNTER
         CALL     OFD      NOWAIT   0       INITIATE OFD INDEX COUNTER
         EVAL     COUNTER  ADD              INCREMENT LOOP COUNTER
                  COUNTER  1
         BRANCH   NEXT     100
END      ENTRY
         END
```

LOCAL VARIABLES OF PROCESS OFDINIT

```
==========================================================================
   1 COUNTER          2 ALPHATBL  (T)    3 OFD
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ========================================================
OFD1              TEST EXPONENTIAL DISTRIBUTION AND COMPARE
```



```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START
         CALL     OFDINIT  NOWAIT   0       INITIATE OFDS 6-10
         PROCESS  EXPONENT  100.0              TST EXPONENTIAL ACTIO
         ASSIGN   1.0
                  LOCAL1
         ASSIGN   2.0
                  LOCAL2
         ASSIGN   3.0
                  LOCAL3
TESTEQ   ENTRY                               TEST COMPARE EQ
         COMPARE  LOCAL1           EQ
                  LOCAL2           EQTEST
         BRANCH   EQTEST   100               TEST FALL THRU
EQTEST   ENTRY
         COMPARE  LOCAL3           EQ
                  LOCAL3           TESTNE
         BRANCH   TESTNE   100               TEST FALL THRU
TESTNE   ENTRY                               TEST COMPARE NE
         COMPARE  LOCAL3           NE
```

```
                LOCAL3          NETEST
        BRANCH  NETEST  100             TEST FALL THRU
NETEST  ENTRY
        COMPARE LOCAL1          NE
                LOCAL2          TESTLT
        BRANCH  TESTLT  100             TEST FALL THRU
TESTLT  ENTRY                           TEST COMPARE LT
        COMPARE LOCAL3          LT
                LOCAL1          LTTEST
        BRANCH  LTTEST  100             TEST FALL THRU
LTTEST  ENTRY
        COMPARE LOCAL1          LT
                LOCAL3          TESTGT
        BRANCH  TESTGT  100             TEST FALL THRU
TESTGT  ENTRY                           TEST COMPARE GT
        COMPARE LOCAL1          GT
                LOCAL2          GTTEST
        BRANCH  GTTEST  100             TEST FALL THRU
GTTEST  ENTRY
        COMPARE LOCAL2          GT
                LOCAL1          TESTLE
        BRANCH  TESTLE  100             TEST FALL THRU
TESTLE  ENTRY                           TEST COMPARE LE
        COMPARE LOCAL3          LE
                LOCAL1          LETEST1
        BRANCH  LETEST1 100             TEST FALL THRU
LETEST1 ENTRY
        COMPARE LOCAL2          LE
                LOCAL2          LETEST2
        BRANCH  LETEST2 100             TEST FALL THRU
LETEST2 ENTRY
        COMPARE LOCAL1          LE
                LOCAL3          TESTGE
        BRANCH  TESTGE  100             TEST FALL THRU
TESTGE  ENTRY                           TEST COMPARE GE
        COMPARE LOCAL1          GE
                LOCAL3          GETEST1
        BRANCH  GETEST1 100             TEST FALL THRU
GETEST1 ENTRY
        COMPARE LOCAL2          GE
                LOCAL2          GETEST2
        BRANCH  GETEST2 100             TEST FALL THRU
GETEST2 ENTRY
        COMPARE LOCAL3          GE
                LOCAL1          TESTEND
        BRANCH  TESTEND 100             TEST FALL THRU
TESTEND ENTRY                           END OF COMPARE TESTING
        END
```

LOCAL VARIABLES OF PROCESS OFD1

```
    1 OFDINIT   (P)    2 PROCESS   (A)    3 LOCAL1          4 LOCAL2
    5 LOCAL3
```

```
PROCESS
MNEMONIC          DESCRIPTION
--------- --------- ------------------------------------------------
OFD10             TEST INTERVAL SCHEDULE AND EVAL TRIG FUNCTIONS

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- -------------------------
          START
          EVAL      VLOG10    LOG10
                    100.0
          EVAL      VEXP10    POWER
                    10.0      VLOG10
          EVAL      VLOGE     LOGE
                    100.0
          EVAL      VEXPE     POWER
                    2.718281  VLOGE
          EVAL      VSIN      SINE
                    2
          EVAL      VARCSIN   ARCSINE
                    VSIN
          EVAL      VCOS      COSINE
                    2
          EVAL      VARCOS    ARCOSINE
                    VCOS
          EVAL      VTAN      TANGENT
                    2
          EVAL      VARCTAN   ARCTAN
                    VTAN
          END
PROCESS
MNEMONIC          DESCRIPTION
--------- --------- ------------------------------------------------
OFD11             TEST ALLOCATE & DEALLOCATE RESOURCE

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- -------------------------
          START
          ALLOC     RES1                          TEST ALLOCATE
          PROCESS   CONSTANT  100.0
          DEALLOC   RES1                          TEST DEALLOCATE
          END
```

LOCAL VARIABLES OF PROCESS OFD11

```
    1 RES1      (R)    2 PROCESS   (A)
PROCESS
MNEMONIC          DESCRIPTION
--------- --------- ------------------------------------------------------------
OFD2              TEST LOGNORML DISTRIBUTION AND ASSIGN

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- --------------------------
          START
          ASSIGN    RES1      NIDLEQ
                    VNIDLEQ
          ASSIGN    RES1      NBUSYQ
                    VNBUSYQ
          ASSIGN    RES1      NWAITQ
                    VNWAITQ
CALL      ENTRY                                   SET UP RESOURCE UTIL
          CALL      OFD11     NOWAIT    2.0       SCHEDULE A NOWAIT PROCESS
          LOOP      CALL      4.0                 LOOP 4 TIMES
          PROCESS   LOGNORML  100.0     100.0
          ASSIGN    RES1      NIDLEQ
                    VNIDLEQ
          ASSIGN    RES1      NBUSYQ
                    VNBUSYQ
          ASSIGN    RES1      NWAITQ
                    VNWAITQ
          END

LOCAL VARIABLES OF PROCESS OFD2
------------------------------------------------------------------------------
    1 RES1      (R)    2 OFD11     (P)    3 PROCESS   (A)
PROCESS
MNEMONIC          DESCRIPTION
--------- --------- ------------------------------------------------------------
OFD3              TEST NORMAL DISTRIBUTION

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- --------------------------
          START
          PROCESS   NORMAL    100.0     100.0
          END

LOCAL VARIABLES OF PROCESS OFD3
------------------------------------------------------------------------------
    1 PROCESS   (A)
PROCESS
MNEMONIC          DESCRIPTION
```

| | | |
|---|---|---|
| OFD4 | | TEST UNIFORM DISTRIBUTION |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | | | |
| | PROCESS | UNIFORM | 100.00 | 100.00 | |
| | END | | | | |

LOCAL VARIABLES OF PROCESS OFD4

1 PROCESS (A)

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| OFD5 | TEST ERLANG DISTRIBUTION |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | | | |
| | EVALUATE | ERLANG | 100.0 | 100.0 | TEST |
| | END | | | | |

LOCAL VARIABLES OF PROCESS OFD5

1 EVALUATE (A)

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| OFD6 | TEST WEIBULL DISTRIBUTION |

| ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|
| | START | | | | |
| | EVALUATE | WEIBULL | 100.0 | 100.0 | TEST |
| | END | | | | |

LOCAL VARIABLES OF PROCESS OFD6

1 EVALUATE (A)

| PROCESS MNEMONIC | DESCRIPTION |
|---|---|
| OFD7 | TEST GAMMA DISTRIBUTION |

```
PAGE    9
ENTRY    OPCODE   PARM     PAR      PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START
         EVALUATE GAMMA    100.0    20.           TEST
         END

LOCAL VARIABLES OF PROCESS OFD7
=====================================================================
    1 EVALUATE  (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ====================================================
OFD8              TEST POISSON SCHEDULE AND EVAL DISTRIBUTIONS


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START
         EVAL     VRAN     RANDOM

         EVAL     VBIN     BINOMIAL
                  100.0    10.0
         EVAL     VBETA    BETA
                  10.0     5.0
         EVAL     VERLANG  ERLANG
                  10.0     5.0
         EVAL     VEXP     EXPONENT
                  10.0
         EVAL     VGAMMA   GAMMA
                  10.0     5.0
         EVAL     VLOGN    LOGNORML
                  10.0     5.0
         EVAL     VNORMAL  NORMAL
                  10.0     5.0
         EVAL     VPOISSON POISSON
                  10.0
         EVAL     VUNIFORM UNIFORM
                  10.0     5.0
         EVAL     VWIEBULL WEIBULL
                  10.0     5.0
         END

LOCAL VARIABLES OF PROCESS OFD8
=====================================================================
    1 VWIEBULL
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ====================================================
OFD9              TEST START SCHEDULE AND CONSTANT ACTION
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
-------- -------- -------- -------- -------- -------------------------
         START
         EVALUATE CONSTANT 100.00                TEST
         END

LOCAL VARIABLES OF PROCESS OFD9
================================================================================
    1 EVALUATE  (A)
PROCESS
MNEMONIC          DESCRIPTION
-------- -------- ------------------------------------------------------
TIMECALL          TEST TIME CALL SCHEDULE AND EVAL ARITHMETIC/TABLE

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
-------- -------- -------- -------- -------- -------------------------
         START
         EVAL     VADD     ADD
                  20.5     -10.5
         EVALUATE CONSTANT 100.0
         EVAL     VSUB     SUBTRACT
                  6.5      -3.5
         EVALUATE CONSTANT VSUB                  TEST
         EVAL     VMULT    MULTIPLY
                  -2.5     -4.0
         EVALUATE CONSTANT VMULT
         EVAL     VDIV     DIVIDE
                  -4.0     -0.40
         EVALUATE CONSTANT VDIV
         EVAL     VPOWER   POWER
                  3.162277 2.0
         EVALUATE CONSTANT VPOWER
         EVAL     VSQRT    SQRT
                  100.0
         EVALUATE CONSTANT VSQRT
         EVAL     VABS     ABSOLUTE
                  -10.0
         EVALUATE CONSTANT VABS
         EVAL     VCTABLE  TCON
                  -50
         EVAL     VDTABLE  TDIS
                  -50.0
         EVAL     VCTABLE  TCON
                  1050.0
         EVAL     VDTABLE  TDIS
                  1050.0
```

```
        EVAL    VCTABLE  TCON
                150.0
        EVAL    VDTABLE  TDIS
                150.0
        EVAL    VCTABLE  TCON
                250.0
        EVAL    VDTABLE  TDIS
                250.0
        EVAL    VCTABLE  TCON
                500.0
        EVAL    VDTABLE  TDIS
                500.0
        EVAL    VCTABLE  TCON
                750.0
        EVAL    VDTABLE  TDIS
                750.0
        EVAL    VCTABLE  TCON
                850.0
        EVAL    VDTABLE  TDIS
                650.0
        END

LOCAL VARIABLES OF PROCESS TIMECALL
=============================================================================
    1 EVALUATE  (A)    2 TCON      (T)    3 TDIS      (T)

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
======== ======== ============================================================
LOAD1             TEST SCHEDULE METHODS
        LOAD      NODES
        ======== ======== ======== ========
        RES1


        PROCESS           SCHEDULE
        MNEMONIC MAX #    METHOD   MEAN     DELTA    PRIORITY
        ======== ======== ======== ======== ======== ========
        OPD1     100      EXPONENT 100                2.0
        OPD2     100      LOGNORML 100      20.0      2.0
        OPD3     100      NORMAL   100      20.0      2.0
        OPD4     100      UNIFORM  100      20.0      2.0
        OPD5     100      ERLANG   100      2         2.0

SCENARIO DEFINITION....

SCENARIO
```

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| MNEMONIC | DESCRIPTION |
|---|---|
| TEST1 | TEST SCHEDULING METHODS |

PERIOD LENGTH

10000

| | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC |
|---|---|---|---|---|---|---|---|
| | 1 | | | | | | |

| TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY | TRIGGER MNEMONIC | TIME TO SCHEDULE | SCHEDULE PRIORITY |
|---|---|---|---|---|---|
| LOAD1 | 0 | 0 | TIMECALL | 5000 | 0 |

FREE 0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

# APPENDIX D

Expected Results for Acceptance Tests 1-5

# APPENDIX D

TEST 1 Statistics - Results Verification for

TESTDBA.DBF

PAGE 9

SIMULATION TIME = 100.00000 UNITS

VARIABLE REPORT

NUMERIC VARIABLES...

| VARIABLE | TOTAL SAMPLES. | VALUE CURRENT... | VALUE MEAN..... | VALUE STD DEV... | VALUE MINIMUM... | VALUE MAXIMUM... |
|---|---|---|---|---|---|---|
| V.COUNT1 | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |

NON-NUMERIC VARIABLES...

| VARIABLE | CURRENT TYPE | CURRENT VALUE |
|---|---|---|

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SIMULATION TIME = 100.00000 UNITS

ITEM REPORT

| ITEM NAME | NUMBER CREATED | NUMBER DESTR'D | TIME IN SYSTEM MINIMUM... | MAXIMUM... | AVERAGE... | STD DEV... |
|---|---|---|---|---|---|---|
| ITEM1 | 10 | 10 | 5.00 | 5.00 | 5.00 | 0. |
| ITEM2 | 10 | 10 | 4.00 | 4.00 | 4.00 | 0. |
| ITEM3 | 10 | 10 | 3.00 | 3.00 | 3.00 | 0. |
| ITEM4 | 10 | 10 | 2.00 | 2.00 | 2.00 | 0. |
| ITEM5 | 10 | 10 | 1.00 | 1.00 | 1.00 | 0. |
| ITEM6 | 10 | 10 | 0. | 0. | 0. | 0. |
| 4ITEM1 | 10 | 9 | 10.00 | 90.00 | 50.00 | 25.82 |
| 4ITEM2 | 10 | 9 | 10.00 | 90.00 | 50.00 | 25.82 |
| 4ITEM3 | 10 | 9 | 10.00 | 90.00 | 50.00 | 25.82 |
| 4ITEM4 | 9 | 9 | 0. | 0. | 0. | 0. |

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SIMULATION TIME = 100.00000 UNITS

ACTION REPORT

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| DELAY | | | | | | |
| USEFUL TIME | 90 | 3.500 | 3.862 | 1.000 | 10.000 | 315.000 |
| DELAY TIME | 90 | 0. | 0. | 0. | 0. | |

SIMULATION TIME = 100.00000 UNITS

PROCESS REPORT

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| INIT1 | | | | | | |
| TOTAL | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| PROCESS WAIT | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| INIT1 | TEST CALL BLOCK |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | NO | | |
| 1 | | ASSIGN | 1 | | | INITIALIZE COUNTER |
| 1 | | | L | | | |
| 11 | NEXT | ENTRY | | | | CONTINUE FOR ALL CALLS |
| 11 | | COMPARE | L | | GT | TEST VALUE OF COUNTER |
| 11 | | | V.COUNT1 | | WAIT | |
| 10 | | CALL | PROCESS1 | BLOCK | L | INITIATE PARALLEL INSTANT |
| 10 | | GIVEN | L | | | |
| 10 | | EVAL | L | ADD | | INCREMENT COUNTER |
| 10 | | | L | 1 | | |
| 10 | | BRANCH | NEXT | 100 | | BRANCH |
| 1 | WAIT | ENTRY | | | | ENTRY |
| 1 | | WAIT | | | | SYNCHRONIZE FOR ALL |
| 1 | | END | | | | |



| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| INIT2 | | | | | | |
| TOTAL | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| PROCESS WAIT | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

PROCESS DESCRIPTION

INIT2 TEST CALL BLOCK AND NOWAIT

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | NO | | |
| 1 | | ASSIGN | 1 | | | INITIALIZE COUNTER |
| 1 | | | L | | | |
| 11 | NEXT | ENTRY | | | | CONTINUE FOR ALL CALLS |
| 11 | | COMPARE | L | | GT | TEST VALUE OF COUNTER |
| 11 | | | V.COUNT1 | | WAIT | |
| 10 | | CALL | PROCESS2 | BLOCK | 0 | INITIATE PARALLEL INSTANT |
| 10 | | EVAL | L | ADD | | INCREMENT COUNTER |
| 10 | | | L | 1 | | |
| 10 | | BRANCH | NEXT | 100 | | BRANCH |
| 1 | WAIT | ENTRY | | | | ENTRY |
| 1 | | CALL | PROCESS2 | NOWAIT | 0 | SYNCHRONIZE FOR ALL |
| 1 | | WAIT | | | | |
| 1 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| INIT3 | | | | | | |
| TOTAL | 1 | 60.000 | 60.000 | 0. | 60.000 | 60.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| ITEM1 | 10 | 0 | 10 | 0 |
| ITEM2 | 10 | 0 | 10 | 0 |
| ITEM3 | 10 | 0 | 10 | 0 |
| ITEM4 | 10 | 0 | 10 | 0 |
| ITEM5 | 10 | 0 | 10 | 0 |
| ITEM6 | 10 | 0 | 10 | 0 |

| ITEM | PPOCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| ITEM1 | 10 | 0. | 0. | 0. | 0. |
| ITEM2 | 10 | 0. | 0. | 0. | 0. |
| ITEM3 | 10 | 0. | 0. | 0. | 0. |
| ITEM4 | 10 | 0. | 0. | 0. | 0. |
| ITEM5 | 10 | 0. | 0. | 0. | 0. |
| ITEM6 | 10 | 0. | 0. | 0. | 0. |

| PROCESS | DESCRIPTION |
|---|---|
| INIT3 | CREATE, SEND, ACTION DELAY FOR 6 ITEMS |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | NO | | |
| 10 | NEXT | ENTRY | | | | ENTRY |
| 10 | | CREATE | ITEM1 | | | |
| 10 | | SEND | PROCESS3 | ITEM1 | | SEND AN ITEM TO PROCESS3 |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | CREATE | ITEM2 | | | |
| 10 | | SEND | PROCESS3 | ITEM2 | | |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | CREATE | ITEM3 | | | |
| 10 | | SEND | PROCESS3 | ITEM3 | | |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | CREATE | ITEM4 | | | |
| 10 | | SEND | PROCESS3 | ITEM4 | | |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | CREATE | ITEM5 | | | |
| 10 | | SEND | PROCESS3 | ITEM5 | | |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | CREATE | ITEM6 | | | |
| 10 | | SEND | PROCESS3 | ITEM6 | | |
| 10 | | DELAY | CONSTANT | 1 | | ACTION |
| 10 | | LOOP | NEXT | V.COUNT1 | | LOOP V.COUNT1 TIMES - NEXT |
| 1 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| INIT3A | | | | | | |
| TOTAL | 1 | 0. | 0. | 0. | 0. | 0. |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

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| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| 4ITEM1 | 10 | 0 | 10 | 0 |
| 4ITEM2 | 10 | 0 | 10 | 0 |
| 4ITEM3 | 10 | 0 | 10 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| 4ITEM1 | 10 | 0. | 0. | 0. | 0. |
| 4ITEM2 | 10 | 0. | 0. | 0. | 0. |
| 4ITEM3 | 10 | 0. | 0. | 0. | 0. |

| PROCESS | DESCRIPTION |
|---|---|
| INIT4A | CREATE, SEND, LOOP 3 ITEMS |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | NO | | |
| 10 | NEXT | ENTRY | | | | ENTRY |
| 10 | | CREATE | 4ITEM1 | 4ITEM2 | 4ITEM3 | CREATE 3 ITEMS |
| 10 | | SEND | PROCESS4 | 4ITEM1 | 4ITEM2 | |
| 10 | | | 4ITEM3 | | | |
| 10 | | LOOP | NEXT | V.COUNT1 | | LOOP V.COUNT1 TIMES - NEXT |
| 1 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| INIT4B | | | | | | |
| TOTAL | 0 | 0. | 0. | 0. | 0. | 0. |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 1 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| 4ITEM4 | 9 | 0 | 9 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| 4ITEM4 | 9 | 0. | 0. | 0. | 0. |

PROCESS DESCRIPTION

INIT%B CREATE,SEND, LOOP WITH DELAY

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | NO | | |
| 10 | NEXT | ENTRY | | | | ENTRY |
| 10 | | DELAY | CONSTANT | 10 | | ACTION |
| 9 | | CREATE | 4ITEM% | | | CREATE |
| 9 | | SEND | PROCESS% | 4ITEM% | | |
| 9 | | LOOP | NEXT | V.COUNT1 | | LOOP V.COUNT1 TIMES - NEXT |
| 0 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV.. | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| PROCESS1 | | | | | | |
| TOTAL | 10 | 55.000 | 5.500 | 2.872 | 1.000 | 10.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 10 | 0 | 10 | 10 | 0 | 0 |

PROCESS DESCRIPTION

PROCESS1 GIVEN-TIME, ACTION DELAY

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 10 | | START | | NO | | |
| 10 | | GIVEN | TIME | | | |
| 10 | | DELAY | CONSTANT | TIME | | ACTION |
| 10 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| PROCESS2 | | | | | | |
| TOTAL | 11 | 110.000 | 10.000 | 0. | 10.000 | 10.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 11 | 0 | 11 | 11 | 0 | 0 |

PROCESS DESCRIPTION
PROCESS2 ACTION DELAY (CONSTANT)

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 11 | | START | | NO | | |
| 11 | | DELAY | CONSTANT | 10 | | |
| 11 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV.. | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| PROCESS3 | | | | | | |
| TOTAL | 10 | 0. | 0. | 0. | 0. | 0. |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 10 | 10 | 0 | 10 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| ITEM1 | 0 | 10 | 0 | 10 |
| ITEM2 | 0 | 10 | 0 | 10 |
| ITEM3 | 0 | 10 | 0 | 10 |
| ITEM4 | 0 | 10 | 0 | 10 |
| ITEM5 | 0 | 10 | 0 | 10 |
| ITEM6 | 0 | 10 | 0 | 10 |

| ITEM | PROCESS # SMPLS | HOLDING TIME MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| ITEM1 | 10 | 5.00 | 5.00 | 5.00 | 0. |
| ITEM2 | 10 | 4.00 | 4.00 | 4.00 | 0. |
| ITEM3 | 10 | 3.00 | 3.00 | 3.00 | 0. |
| ITEM4 | 10 | 2.00 | 2.00 | 2.00 | 0. |
| ITEM5 | 10 | 1.00 | 1.00 | 1.00 | 0. |
| ITEM6 | 10 | 0. | 0. | 0. | 0. |

| ITEM | TOTAL # SENT TO PROCESS | -- NUMBER IN RECEIVE POOL -- CURRENT | AVERAGE | MAXIMUM | AVG DELAY TIME DUE TO ITEM | MAX DELAY TIME DUE TO ITEM |
|---|---|---|---|---|---|---|
| ITEM1 | 10 | 0 | .50 | 1.00 | 0. | 0. |

| | | | | | | |
|---|---|---|---|---|---|---|
| ITEM2 | 10 | 0 | .40 | 1.00 | 1.00 | 1.00 |
| ITEM3 | 10 | 0 | .30 | 1.00 | 2.00 | 2.00 |
| ITEM4 | 10 | 0 | .20 | 1.00 | 3.00 | 3.00 |
| ITEM5 | 10 | 0 | .10 | 1.00 | 4.00 | 4.00 |
| ITEM6 | 10 | 0 | 0. | 1.00 | 5.00 | 5.00 |

| PROCESS | DESCRIPTION |
|---|---|
| PROCESS3 | RECEIVE AND DESTROY ITEMS -- SERIAL # NO MATCH |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 10 | | START | | NO | | |
| 10 | | RECEIVE | ITEM1 | ITEM2 | ITEM3 | |
| 10 | | | ITEM4 | ITEM5 | ITEM6 | |
| 10 | | DESTROY | ITEM1 | ITEM2 | ITEM3 | DESTROY ALL SIX ITEMS |
| 10 | | | ITEM4 | ITEM5 | ITEM6 | |
| 10 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| PROCESS4 | | | | | | |
| TOTAL | 9 | 0. | 0. | 0. | 0. | 0. |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 9 | 9 | 0 | 9 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| 4ITEM1 | 0 | 0 | 0 | 9 |
| 4ITEM2 | 0 | 0 | 0 | 9 |
| 4ITEM3 | 0 | 0 | 0 | 9 |
| 4ITEM4 | 0 | 0 | 0 | 9 |

| ITEM | PROCESS # SMPLS | HOLDING TIME MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| 4ITEM1 | 9 | 50.00 | 10.00 | 90.00 | 25.82 |
| 4ITEM2 | 9 | 50.00 | 10.00 | 90.00 | 25.82 |
| 4ITEM3 | 9 | 50.00 | 10.00 | 90.00 | 25.82 |
| 4ITEM4 | 9 | 0. | 0. | 0. | 0. |

| TOTAL # SENT TO | -- NUMBER IN RECEIVE POOL -- | AVG DELAY TIME DUE | MAX DELAY TIME DUE |
|---|---|---|---|

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| ITEM | PROCESS | CURRENT | AVERAGE | MAXIMUM | TO ITEM | TO ITEM |
|---|---|---|---|---|---|---|
| 4ITEM1 | 19 | 1 | 5.50 | 10.00 | 0. | 0. |
| 4ITEM2 | 19 | 1 | 5.50 | 10.00 | 0. | 0. |
| 4ITEM3 | 19 | 1 | 5.50 | 10.00 | 0. | 0. |
| 4ITEM4 | 18 | 0 | 0. | 1.00 | 0. | 0. |

| PROCESS | DESCRIPTION |
|---|---|
| PROCESS4 | RECEIVE AND DESTROY 4 ITEMS -- SERIAL # MATCH |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 9 | | START | | NO | MATCH | |
| 9 | | RECEIVE | 4ITEM1 | 4ITEM2 | 4ITEM3 | |
| 9 | | | 4ITEM4 | | | |
| 9 | | DESTROY | 4ITEM1 | 4ITEM2 | 4ITEM3 | DESTROY 4 ITEMS |
| 9 | | | 4ITEM4 | | | |
| 9 | | END | | | | |

APPENDIX D

TEST 2 Statistics - Results Verification for

TESTDBB.DBF

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SIMULATION TIME = 100.00000 UNITS

VARIABLE REPORT

NUMERIC VARIABLES...

| VARIABLE | TOTAL SAMPLES | VALUE CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| V.CLOCK1 | 2 | 0. | 0. | 0. | 0. | 0. |
| V.CLOCK2 | 3 | 0. | 0. | 0. | 0. | 0. |

NON-NUMERIC VARIABLES...

| VARIABLE | CURRENT TYPE | CURRENT VALUE |
|---|---|---|
| V.CHNL | RESOURCE | CHNL |
| V.CNODE | RESOURCE | A |
| V.NXTND | RESOURCE | B |

SIMULATION TIME = 100.00000 UNITS

RESOURCE REPORT

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| A | | | | | | |
| INTO IDLE | 4 | | | | | |
| OUT OF IDLE | 3 | | | | | |
| # IDLE | | 1.000 | .900 | .300 | 0. | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 3 | | | | | |
| OUT OF BUSY | 3 | | | | | |
| # BUSY | | 0. | .100 | .300 | 0. | 1.000 |
| BUSY TIME | | | 3.333 | 4.714 | 0. | 10.000 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 3 | | | | | |
| OUT OF WAIT | 3 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| B | | | | | | |
| INTO IDLE | 2 | | | | | |
| OUT OF IDLE | 1 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 1 | | | | | |
| OUT OF BUSY | 1 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 1 | | | | | |
| OUT OF WAIT | 1 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| C | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

CHNL

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO IDLE | 2 | | | | | |
| OUT OF IDLE | 1 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 1 | | | | | |
| OUT OF BUSY | 1 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 1 | | | | | |
| OUT OF WAIT | 1 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| C1 | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |

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| | | | | |
|---|---|---|---|---|
| WAIT TIME | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 100.00000 UNITS

ACTION REPORT

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| ADELAY | | | | | | |
| USEFUL TIME | 2 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 2 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| BDELAY | | | | | | |
| USEFUL TIME | 1 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 1 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| REPLY | | | | | | |
| USEFUL TIME | 1 | 10.000 | 0. | 10.000 | 10.000 | 10.000 |
| DELAY TIME | 1 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| TRANSFER | | | | | | |
| USEFUL TIME | 1 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 1 | 0. | 0. | 0. | 0. | |

SIMULATION TIME = 100.00000 UNITS

PROCESS REPORT

| PROCESS | TOTAL SAMPLES | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| APPOC | | | | | | |
| TOTAL | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 3 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| APPOC | |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | A | | | |
| 1 | | ALLOC | $CNODE | | | TEST $CNODE IN ALLOC CONTX |
| 1 | | ADELAY | CONSTANT | $CLOCK | | TEST $CLOCK IN ACTION MEAN |
| 1 | | ADELAY | CONSTANT | 0 | | |
| 1 | | ASSIGN | $CNODE | | | TEST ASSIGNMENT OF $CNODE |
| 1 | | | L.CNODE | | | |
| 1 | | ASSIGN | $CNODE | | | TEST ASSIGNMENT $CNODE |
| 1 | | | V.CNODE | | | |
| 1 | | ASSIGN | BPROC | | | TEST PROCESS TO LOCAL |
| 1 | | | NEXT | | | |
| 1 | | ASSIGN | $NODE | NEXT | | TEST $NODE EVALUATION |
| 1 | | | LB1 | | | |
| 1 | | ASSIGN | $NODE | BPROC | | TEST $NODE GLOBAL TO LOCAL |
| 1 | | | LB2 | | | |
| 1 | | ASSIGN | $NODE | EPROC | | TEST $NXTNODE |
| 1 | | | LB3 | | | |
| 1 | | COMPARE | LB1 | | EQ | TEST ASSIGNMENT & COMPARE |
| 1 | | | LB2 | | N1 | |
| 0 | | BRANCH | N1 | 100 | | SHOULD NOT EXECUTE |
| 1 | N1 | ENTRY | | | | |
| 1 | | ASSIGN | $NXTNODE | LB1 | | TEST $NEXTNODE |
| 1 | | | LB3 | | | |
| 1 | | ASSIGN | $NXTNODE | LB2 | | |
| 1 | | | V.NEXT | | | |
| 1 | | COMPARE | LB3 | | EQ | TEST $NXTNODE TO LOCAL |

```
PAGE   14
    1                   V.NEXT              N2
    0          BRANCH   N2        100
    1 N2       ENTRY
    1          ASSIGN   $CHANNEL B                   TEST$CHANNEL TO LOCAL RES.
    1                   L1.CHNL
    1          ASSIGN   $CHANNEL LB3                 TEST $CHANNEL TO LOCAL
    1                   L2.CHNL
    1          ASSIGN   $CHANNEL V.NEXT              TEST $CHANNEL GLOBAL
    1                   V.CHNL
    1          COMPARE  $CNODE              EQ       TEST COMPARE CONTXT $CNODE
    1                   $CNODE              A1
    0          BRANCH   A1        100
    1 A1       ENTRY
    1          COMPARE  L.CNODE             EQ       TEST CONTEXT $CNODE TO LOC
    1                   $CNODE              A2
    0          BRANCH   A2        100
    1 A2       ENTRY
    1          COMPARE  $CNODE              EQ       TEST CONTEXT $CNODE-GLOBAL
    1                   V.CNODE             A3
    0          BRANCH   A3        100
    1 A3       ENTRY
    1          COMPARE  L.NXTND             EQ       TEST $NXTNODE GLOBAL-LOCAL
    1                   V.NXTND             A4
    1          BRANCH   A4        100
    1 A4       ENTRY
    1          COMPARE  L1.CHNL             EQ       TEST $CHANNEL COMPARE
    1                   L2.CHNL             A5
    0          BRANCH   A5        100
    1 A5       ENTRY
    1          COMPARE  V.CHNL              EQ       TEST ASSIGN $CHANNEL
    1                   L1.CHNL             A6
    0          BRANCH   A6        100
    1 A6       ENTRY
    1          TEST     L2.CHNL   A7                  AVAILABILITY OF $CHNL
    1          BRANCH   A7        100
    1 A7       ENTRY
    1          ALLOC    L2.CHNL                      SWITCH BUSY FLAG ON CHNL
    1          TEST     L2.CHNL   A8                  TEST SHOULD BE FAILED
    0          BRANCH   A8        100
    1 A8       ENTRY
    1          DEALLOC  $CNODE                       RELEASE CURRENT NODE
    1          TRANSFER CONSTANT $CLOCK              TRANSFER DATA OVER CHANNEL
    1          DEALLOC  L2.CHNL                      RELEASE CURRENT CHANNEL
    1          CALL     BPROC     NOWAIT   0         TEST PARAMETER BINDING
    1          GIVEN    $CLOCK    $CNODE   $TASK
    1          SUSPEND                               TEST BINDING OF $TASK
    1          END

                TOTAL
```

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| PROCESS | SAMPLES. S... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|
| BPROC | | | | | |
| TOTAL | 1 | 10.000 | 0. | 10.000 | 10.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 2 | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 0 | 1 | 1 | 0 | 0 |

PROCESS DESCRIPTION

BPROC

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | B | | | |
| 1 | | GIVEN | LCLOCK | LNODE | LTASK | |
| 1 | | ASSIGN | $NODE | BPROC | | LET CURRENT NODE REGISTER |
| 1 | | | $CNODE | | | |
| 1 | | ALLOC | $CNODE | | | MAKE B BUSY |
| 1 | | EDELAY | CONSTANT | $CLOCK | | |
| 1 | | TEST | $CNODE | B1 | | TEST AVAILABILITY OF B |
| 0 | | BRANCH | B1 | 100 | | |
| 1 | B1 | ENTRY | | | | |
| 1 | | DEALLOC | $CNODE | | | |
| 1 | | EVAL | L1 | ADD | | TEST EVAL CONTEXT $CLOCK |
| 1 | | | 0 | $CLOCK | | |
| 1 | | EVAL | L2 | SUBTRACT | | |
| 1 | | | $CLOCK | 0 | | |
| 1 | | COMPARE | L1 | | EQ | TEST RESULTS OF EVAL |
| 1 | | | L2 | | B2 | |
| 0 | | BRANCH | B2 | 100 | | |
| 1 | B2 | ENTRY | | | | |
| 1 | | EVAL | V.CLOCK1 | ADD | | EVAL GLOBAL VARIABLE TEST |
| 1 | | | 0 | $CLOCK | | |
| 1 | | EVAL | V.CLOCK2 | SUBTRACT | | |
| 1 | | | 0 | $CLOCK | | |
| 1 | | EVAL | V.CLOCK2 | ABSOLUTE | | EVAL ABSOLUTE $CLOCK |
| 1 | | | V.CLOCK2 | | | |
| 1 | | COMPARE | V.CLOCK1 | | EQ | TEST ARITHMETIC CONTEXT |
| 1 | | | V.CLOCK2 | | B3 | |
| 0 | | BRANCH | B3 | 100 | | |
| 1 | B3 | ENTRY | | | | |
| 1 | | ALLOC | LNODE | | | ALLOCATE PASSED PARAMETER |
| 1 | | REPLY | CONSTANT | 10 | | |
| 1 | | TEST | LNODE | B4 | | TEST AVAILABLITY OF RES. |

```
PAGE   16
     0          BRANCH   B4       100
     1 B4       ENTRY
     1          DEALLOC  LNODE                    FREE UP CHANNEL
     1          RESUME   LTASK              RESTART PARENT PROCESS
     1          END

                  TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
-------- ------ -------- ---------- ---------- ---------- ---------- ----------
TRACE
          TOTAL         1       0.         0.         0.         0.         0.
  PROCESS WAIT          0       0.         0.         0.         0.         0.
 RESOURCE WAIT          0       0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        -------- -------- -------- -------- -------- --------
               1        1        0        1        0        0

PROCESS          DESCRIPTION
-------- -------- ------------------------------------------------------------
TRACE             TURN ON THE TRACE CAPABILITY

COMMIT ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
------ -------- -------- -------- -------- -------- ----------------------------
     1          START    ALL      NO
     1          TRACE    ON                         ENABLE TRACE OF KEYWORD
     1          END
```

APPENDIX D

TEST 3 Statistics - Results Verification for

TESTDBC.DBF

SIMULATION TIME = 1400.00000 UNITS

VARIABLE REPORT

NUMERIC VARIABLES...

| VARIABLE | TOTAL SAMPLES | VALUE CURRENT | VALUE MEAN | VALUE STD DEV | VALUE MINIMUM | VALUE MAXIMUM |
|---|---|---|---|---|---|---|
| GAMMA1 | 1 | 300.000 | 300.000 | 0. | 300.000 | 300.000 |
| GAMMA2 | 1 | .001 | .001 | 0. | .001 | .001 |

NON-NUMERIC VARIABLES...

| VARIABLE | CURRENT TYPE | CURRENT VALUE |
|---|---|---|

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SIMULATION TIME = 1400.00000 UNITS

ITEM REPORT

| ITEM NAME | NUMBER CREATED | NUMBER DESTR'D | TIME IN SYSTEM MINIMUM... | MAXIMUM... | AVERAGE... | STD DEV... |
|---|---|---|---|---|---|---|
| MSG | 400 | 400 | .09 | 100.56 | 27.48 | 34.65 |

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SIMULATION TIME = 1400.00000 UNITS

QUEUE REPORT

| QUEUE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| BUFFER | | | | | | |
| FILED ON | 400 | | | | | |
| REMOVED FROM | 400 | | | | | |
| # IN QUEUE | | 0. | 7.766 | 21.054 | 0. | 101.000 |
| TIME IN QUEUE | | | 27.182 | 34.654 | .000 | 100.284 |
| TASKS BLOCKED | 0 | | | | | |
| TASKS RESUMED | 0 | | | | | |
| # BEING BLOCKED | | 0. | 0. | 0. | 0. | 0. |
| TIME BLOCKED | | | 0. | 0. | 0. | 0. |

SIMULATION TIME = 1400.00000 UNITS

RESOURCE REPORT

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| SEMA | | | | | | |
| INTO IDLE | 401 | | | | | |
| OUT OF IDLE | 400 | | | | | |
| # IDLE | | 1.000 | .958 | .201 | 0. | 1.000 |
| IDLE TIME | | | .667 | 1.881 | 0. | 27.828 |
| INTO BUSY | 400 | | | | | |
| OUT OF BUSY | 400 | | | | | |
| # BUSY | | 0. | .042 | .201 | 0. | 1.000 |
| BUSY TIME | | | .147 | .089 | .000 | .303 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 400 | | | | | |
| OUT OF WAIT | 400 | | | | | |
| # WAITING | | 0. | .006 | .064 | 0. | 2.000 |
| WAIT TIME | | | .022 | .057 | 0. | .394 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| STATION1 | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| STATIONS | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 1400.00000 UNITS

ACTION REPORT

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| READ-MSG | | | | | | |
| USEFUL TIME | 400 | .147 | .089 | .000 | .300 | 4.212 |
| DELAY TIME | 400 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| SENDING | | | | | | |
| USEFUL TIME | 400 | .147 | .089 | .000 | .300 | 4.213 |
| DELAY TIME | 400 | 0. | 0. | 0. | 0. | |

SIMULATION TIME = 1400.00000 UNITS

PROCESS REPORT

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| RECEIVE | | | | | | |
| TOTAL | 4599 | 58.968 | .013 | .049 | 0. | .300 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 4599 | 4599 | 0 | 4599 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 400 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 400 | .15 | .00 | .30 | .09 |

| PROCESS | DESCRIPTION |
|---|---|
| RECEIVE | RECEIVE MESSAGES FROM TRANSMIT |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 4599 | | START | STATION2 | NO | | |
| 4599 | | TEST | SEMA | ABORT | | TEST FOR BUFFER USE |
| 4409 | | REMOVE | FIRST | MSG | BUFFER | REMOVE BY FIFO DISCIPLINE |
| 4409 | | COMPARE | MSG | | EQ | WHEN MSG=0 BUFFER IS EMPTY |
| 4409 | | | 0 | | ABORT | |
| 400 | | ASSIGN | MSG | LENGTH | | MESSAGE LENGTH IS READ |
| 400 | | | ALPHA | | | |
| 400 | | EVAL | MU | MULTIPLY | | CALCULATE RECEPTION TIME |
| 400 | | | ALPHA | GAMMA2 | | |
| 400 | | READ-MSG | UNIFORM | MU | | TIME TO PROCESS MESSAGE |
| 400 | | DESTROY | MSG | | | MSG ELIMINATED FROM SYSTEM |
| 4599 | ABORT | ENTRY | | | | ENTER FROM COMPARE & TEST |
| 4599 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

TRANSMIT

| | | | | | | |
|---|---|---|---|---|---|---|
| TOTAL | 400 | 67.705 | .169 | .107 | .000 | .671 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 400 | 8.737 | .022 | .057 | 0. | .394 |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 400 | 400 | 0 | 400 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 400 | 0 | 0 | 0 |

| | PROCESS HOLDING TIME | | | |
|---|---|---|---|---|
| ITEM | # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
| MSG | 400 | .15 | .00 | .30 | .09 |

| PROCESS | DESCRIPTION |
|---|---|
| TRANSMIT | TRANSMITTING MESSAGES TO RECEIVER |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 400 | | START | STATION1 | NO | | |
| 400 | | ALLOC | SEMA | | | RESOURCE FOR SENDING MSG |
| 400 | | CREATE | MSG | | | INTRODUCE MSG INTO SYSTEM |
| 400 | | EVAL | ALPHA | RANDOM | | GENERATE RANDOM NUMBER |
| 400 | | | | | | |
| 400 | | EVAL | ALPHA | MULTIPLY | | TWICE AVERAGE TIMES ALPHA |
| 400 | | | ALPHA | GAMMA1 | | |
| 400 | | ASSIGN | ALPHA | | | SET MESSAGE LENGTH |
| 400 | | | MSG | LENGTH | | |
| 400 | | EVAL | MU | MULTIPLY | | CALCULATE TRANSMIT TIME |
| 400 | | | ALPHA | GAMMA2 | | |
| 400 | | SENDING | UNIFORM | MU | | TIME CONSUMED TRANSMITTING |
| 400 | | ASSIGN | ALPHA | | | SET MESSAGE LENGTH |
| 400 | | | MSG | LENGTH | | |
| 400 | | FILE | MSG | LAST | BUFFER | STORE MSG ON BUFFER |
| 400 | | DEALLOC | SEMA | | | RELEASE RESOURCE SEMA |
| 400 | | END | | | | |

# APPENDIX D

## TEST 4 Statistics - Results Verification for TESTDBD.DBF

PAGE 19

SIMULATION TIME = 3600000.00000 UNITS

CONSTANT REPORT

| CONSTANT | CURRENT VALUE... |
|---|---|
| V.TRACE | 0. |

PAGE 20

SIMULATION TIME = 3600000.00000 UNITS

VARIABLE REPORT

NUMERIC VARIABLES...

| VARIABLE | TOTAL SAMPLES | VALUE CURRENT | VALUE MEAN | VALUE STD DEV | VALUE MINIMUM | VALUE MAXIMUM |
|---|---|---|---|---|---|---|
| ABGRATE | 1 | 60000.000 | 60000.000 | 0. | 60000.000 | 60000.000 |
| ABPRATE | 1 | 36000.000 | 36000.000 | 0. | 36000.000 | 36000.000 |
| CHVRATE | 1 | .407 | .407 | 0. | .407 | .407 |
| HCPRATE | 1 | 72000.000 | 72000.000 | 0. | 72000.000 | 72000.000 |
| TIME1 | 1 | 30.000 | 30.000 | 0. | 30.000 | 30.000 |
| VRATE | 1 | 1.628 | 1.628 | 0. | 1.628 | 1.628 |

NON NUMERIC VARIABLES...

| VARIABLE | CURRENT TYPE | CURRENT VALUE |
|---|---|---|

PAGE 21

SIMULATION TIME = 3600000.00000 UNITS

ITEM REPORT

| ITEM NAME | NUMBER CREATED | NUMBER DESTR'D | TIME IN SYSTEM MINIMUM... | MAXIMUM... | AVERAGE... | STD DEV... |
|---|---|---|---|---|---|---|
| MSG | 626 | 626 | 2193.55 | 5749.13 | 3727.00 | 1190.02 |

SIMULATION TIME = 3600000.00000 UNITS

RESOURCE REPORT

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| AB1 | | | | | | |
| INTO IDLE | 290 | | | | | |
| OUT OF IDLE | 289 | | | | | |
| # IDLE | | 1.000 | 1.000 | .001 | 0. | 1.000 |
| IDLE TIME | | | 12267.235 | 16296.127 | .000 | 60000.799 |
| INTO BUSY | 289 | | | | | |
| OUT OF BUSY | 289 | | | | | |
| # BUSY | | 0. | .000 | .001 | 0. | 1.000 |
| BUSY TIME | | | .405 | .353 | .000 | .998 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 289 | | | | | |
| OUT OF WAIT | 289 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .384 | .339 | .000 | .999 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

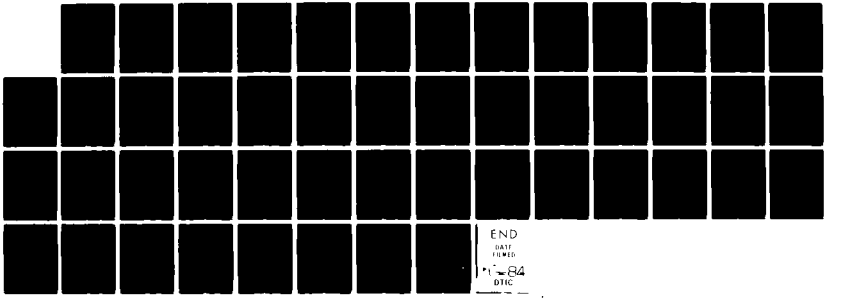
PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| AB2 | | | | | | |
| INTO IDLE | 290 | | | | | |
| OUT OF IDLE | 289 | | | | | |
| # IDLE | | 1.000 | 1.000 | .001 | 0. | 1.000 |
| IDLE TIME | | | 12266.960 | 16262.777 | .000 | 60000.799 |
| INTO BUSY | 289 | | | | | |
| OUT OF BUSY | 289 | | | | | |
| # BUSY | | 0. | .000 | .001 | 0. | 1.000 |
| BUSY TIME | | | .406 | .363 | .000 | .997 |

AD-A135 760 AISIM (AUTOMATED INTERACTIVE SIMULATION MODEL) INSTALLATION AND ACCEPTANC..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP W AUSTELL ET AL.

3/3

UNCLASSIFIED 26 FEB 82 ESD-TR-83-216 F19628-79-C-0153 F/G 9/2 NL

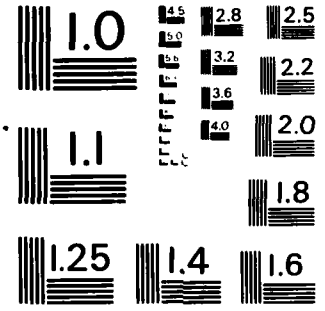


END

DATE FILMED

1-84

DTIC




MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 289 | | | | | |
| OUT OF WAIT | 289 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .386 | .349 | .000 | .997 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CHQ | | | | | | |
| INTO IDLE | 391 | | | | | |
| OUT OF IDLE | 390 | | | | | |
| # IDLE | | 1.000 | .972 | .166 | 0. | 1.000 |
| IDLE TIME | | | 8826.471 | 13210.950 | .000 | 56277.317 |
| INTO BUSY | 390 | | | | | |
| OUT OF BUSY | 390 | | | | | |
| # BUSY | | 0. | .028 | .166 | 0. | 1.000 |
| BUSY TIME | | | 263.042 | 166.367 | 11.253 | 415.071 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 390 | | | | | |
| OUT OF WAIT | 390 | | | | | |
| # WAITING | | 0. | .002 | .040 | 0. | 1.000 |
| WAIT TIME | | | 14.904 | 25.226 | .000 | 117.250 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

CH1.A

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO IDLE | 293 | | | | | |
| OUT OF IDLE | 292 | | | | | |
| # IDLE | | 1.000 | .930 | .256 | 0. | 1.000 |
| IDLE TIME | | | 11268.251 | 15592.710 | .000 | 56338.000 |
| INTO BUSY | 292 | | | | | |
| OUT OF BUSY | 292 | | | | | |
| # BUSY | | 0. | .070 | .256 | 0. | 1.000 |
| BUSY TIME | | | 868.430 | 437.359 | 325.520 | 1221.399 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 292 | | | | | |
| OUT OF WAIT | 292 | | | | | |
| # WAITING | | 0. | .062 | .316 | 0. | 3.000 |
| WAIT TIME | | | 762.491 | 985.521 | 0. | 2996.099 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH1.B | | | | | | |
| INTO IDLE | 175 | | | | | |
| OUT OF IDLE | 174 | | | | | |
| # IDLE | | 1.000 | .970 | .172 | 0. | 1.000 |
| IDLE TIME | | | 19745.624 | 16483.206 | 379.995 | 58780.099 |
| INTO BUSY | 174 | | | | | |
| OUT OF BUSY | 174 | | | | | |
| # BUSY | | 0. | .030 | .172 | 0. | 1.000 |
| BUSY TIME | | | 629.304 | 423.657 | 325.520 | 1220.799 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 174 | | | | | |
| OUT OF WAIT | 174 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| WAIT TIME | | | .846 | .295 | .000 | .995 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH2.A | | | | | | |
| INTO IDLE | 293 | | | | | |
| OUT OF IDLE | 292 | | | | | |
| # IDLE | | 1.000 | .930 | .256 | 0. | 1.000 |
| IDLE TIME | | | 11268.251 | 15592.710 | .000 | 56338.000 |
| INTO BUSY | 292 | | | | | |
| OUT OF BUSY | 292 | | | | | |
| # BUSY | | 0. | .070 | .256 | 0. | 1.000 |
| BUSY TIME | | | 868.430 | 437.359 | 325.520 | 1221.399 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 292 | | | | | |
| OUT OF WAIT | 292 | | | | | |
| # WAITING | | 0. | .062 | .316 | 0. | 3.000 |
| WAIT TIME | | | 762.491 | 985.521 | 0. | 2996.099 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH2.B | | | | | | |
| INTO IDLE | 175 | | | | | |
| OUT OF IDLE | 174 | | | | | |
| # IDLE | | 1.000 | .970 | .172 | 0. | 1.000 |
| IDLE TIME | | | 19745.166 | 16436.432 | 373.369 | 58780.099 |
| INTO BUSY | 174 | | | | | |
| OUT OF BUSY | 174 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| # BUSY | | 0. | .030 | .172 | 0. | 1.000 |
| BUSY TIME | | | 629.276 | 423.677 | 325.520 | 1220.799 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 174 | | | | | |
| OUT OF WAIT | 174 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .218 | .262 | .000 | .994 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH3.A | | | | | | |
| INTO IDLE | 467 | | | | | |
| OUT OF IDLE | 466 | | | | | |
| # IDLE | | 1.000 | .975 | .157 | 0. | 1.000 |
| IDLE TIME | | | 7409.114 | 13753.414 | 0. | 58169.700 |
| INTO BUSY | 466 | | | | | |
| OUT OF BUSY | 466 | | | | | |
| # BUSY | | 0. | .025 | .157 | 0. | 1.000 |
| BUSY TIME | | | 195.110 | 111.958 | 81.380 | 306.049 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 466 | | | | | |
| OUT OF WAIT | 466 | | | | | |
| # WAITING | | 0. | .007 | .086 | 0. | 1.000 |
| WAIT TIME | | | 57.705 | 97.751 | 0. | 225.875 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH3.B | | | | | | |
| INTO IDLE | 231 | | | | | |
| OUT OF IDLE | 230 | | | | | |
| # IDLE | | 1.000 | .995 | .072 | 0. | 1.000 |
| IDLE TIME | | | 15303.640 | 24957.013 | 252.766 | 142450.548 |
| INTO BUSY | 230 | | | | | |
| OUT OF BUSY | 230 | | | | | |
| # BUSY | | 0. | .005 | .072 | 0. | 1.000 |
| BUSY TIME | | | 81.522 | .325 | 81.200 | 82.176 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 230 | | | | | |
| OUT OF WAIT | 230 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .322 | .325 | .000 | .976 |

CUPRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH5.A | | | | | | |
| INTO IDLE | 391 | | | | | |
| OUT OF IDLE | 390 | | | | | |
| # IDLE | | 1.000 | .984 | .126 | 0. | 1.000 |
| IDLE TIME | | | 8934.196 | 13455.340 | .000 | 57911.874 |
| INTO BUSY | 390 | | | | | |
| OUT OF BUSY | 390 | | | | | |
| # BUSY | | 0. | .016 | .126 | 0. | 1.000 |
| BUSY TIME | | | 149.435 | 102.806 | 81.380 | 306.049 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO WAIT | 390 | | | | | |
| OUT OF WAIT | 390 | | | | | |
| # WAITING | | 0. | .000 | .001 | 0. | 1.000 |
| WAIT TIME | | | .356 | .401 | .000 | 3.638 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH5.B | | | | | | |
| INTO IDLE | 273 | | | | | |
| OUT OF IDLE | 272 | | | | | |
| # IDLE | | 1.000 | .994 | .078 | 0. | 1.000 |
| IDLE TIME | | | 12927.335 | 18596.900 | 252.573 | 88274.030 |
| INTO BUSY | 272 | | | | | |
| OUT OF BUSY | 272 | | | | | |
| # BUSY | | 0. | .006 | .078 | 0. | 1.000 |
| BUSY TIME | | | 81.711 | .322 | 81.380 | 82.355 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 272 | | | | | |
| OUT OF WAIT | 272 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .331 | .322 | .000 | .975 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH6.A | | | | | | |
| INTO IDLE | 43 | | | | | |
| OUT OF IDLE | 42 | | | | | |
| # IDLE | | 1.000 | .996 | .062 | 0. | 1.000 |
| IDLE TIME | | | 83787.184 | 96780.378 | 1112.723 | 432881.692 |

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO BUSY | 42 | | | | | |
| OUT OF BUSY | 42 | | | | | |
| # BUSY | | 0. | .004 | .062 | 0. | 1.000 |
| BUSY TIME | | | 325.913 | .329 | 325.525 | 326.512 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 42 | | | | | |
| OUT OF WAIT | 42 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .393 | .329 | .005 | .993 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH6.B | | | | | | |
| INTO IDLE | 43 | | | | | |
| OUT OF IDLE | 42 | | | | | |
| # IDLE | | 1.000 | .996 | .062 | 0. | 1.000 |
| IDLE TIME | | | 83732.077 | 96677.388 | 1072.319 | 432898.448 |
| INTO BUSY | 42 | | | | | |
| OUT OF BUSY | 42 | | | | | |
| # BUSY | | 0. | .004 | .062 | 0. | 1.000 |
| BUSY TIME | | | 325.922 | .328 | 325.520 | 326.496 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 42 | | | | | |
| OUT OF WAIT | 42 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .403 | .328 | 0. | .976 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH7.A | | | | | | |
| INTO IDLE | 43 | | | | | |
| OUT OF IDLE | 42 | | | | | |
| # IDLE | | 1.000 | .996 | .062 | 0. | 1.000 |
| IDLE TIME | | | 83741.720 | 96681.456 | 1072.839 | 432897.968 |
| INTO BUSY | 42 | | | | | |
| OUT OF BUSY | 42 | | | | | |
| # BUSY | | 0. | .004 | .062 | 0. | 1.000 |
| BUSY TIME | | | 325.926 | .340 | 325.522 | 326.496 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 42 | | | | | |
| OUT OF WAIT | 42 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .406 | .340 | .003 | .976 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH7.B | | | | | | |
| INTO IDLE | 161 | | | | | |
| OUT OF IDLE | 160 | | | | | |
| # IDLE | | 1.000 | .956 | .205 | 0. | 1.000 |
| IDLE TIME | | | 21173.641 | 24246.950 | .000 | 62986.574 |
| INTO BUSY | 160 | | | | | |
| OUT OF BUSY | 160 | | | | | |
| # BUSY | | 0. | .044 | .205 | 0. | 1.000 |
| BUSY TIME | | | 986.037 | 393.847 | 325.534 | 1221.274 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 160 | | | | | |
| OUT OF WAIT | 160 | | | | | |
| # WAITING | | 0. | .015 | .122 | 0. | 1.000 |
| WAIT TIME | | | 337.683 | 441.330 | 0. | 916.274 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH8.A | | | | | | |
| INTO IDLE | 273 | | | | | |
| OUT OF IDLE | 272 | | | | | |
| # IDLE | | 1.000 | .975 | .155 | 0. | 1.000 |
| IDLE TIME | | | 12682.605 | 18597.202 | 8.428 | 88029.510 |
| INTO BUSY | 272 | | | | | |
| OUT OF BUSY | 272 | | | | | |
| # BUSY | | 0. | .025 | .155 | 0. | 1.000 |
| BUSY TIME | | | 325.863 | .331 | 325.520 | 326.516 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 272 | | | | | |
| OUT OF WAIT | 272 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .343 | .331 | .000 | .996 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH8.B | | | | | | |
| INTO IDLE | 391 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| OUT OF IDLE | 390 | | | | | |
| # IDLE | | 1.000 | .935 | .246 | 0. | 1.000 |
| IDLE TIME | | | 8492.712 | 13207.335 | .000 | 56292.798 |
| INTO BUSY | 390 | | | | | |
| OUT OF BUSY | 390 | | | | | |
| # BUSY | | 0. | .065 | .246 | 0. | 1.000 |
| BUSY TIME | | | 596.708 | 411.191 | 325.520 | 1221.449 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 390 | | | | | |
| OUT OF WAIT | 390 | | | | | |
| # WAITING | | 0. | .025 | .158 | 0. | 2.000 |
| WAIT TIME | | | 229.909 | 334.922 | .000 | 1840.386 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH9.A | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CH9.B | | | | | | |
| INTO IDLE | 1 | | | | | |
| OUT OF IDLE | 0 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 1.000 | 1.000 |
| IDLE TIME | | | 0. | 0. | 0. | 0. |
| INTO BUSY | 0 | | | | | |
| OUT OF BUSY | 0 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 0. |
| BUSY TIME | | | 0. | 0. | 0. | 0. |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 0 | | | | | |
| OUT OF WAIT | 0 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 0. |
| WAIT TIME | | | 0. | 0. | 0. | 0. |



CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| DK.1 | | | | | | |
| INTO IDLE | 273 | | | | | |
| OUT OF IDLE | 272 | | | | | |
| # IDLE | | 1.000 | .997 | .058 | 0. | 1.000 |
| IDLE TIME | | | 12962.714 | 18597.589 | 327.520 | 88297.829 |
| INTO BUSY | 272 | | | | | |
| OUT OF BUSY | 272 | | | | | |
| # BUSY | | 0. | .003 | .058 | 0. | 1.000 |
| BUSY TIME | | | 44.566 | 19.646 | 4.115 | 87.551 |

| | | | | | | |
|---|---|---|---|---|---|---|
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 272 | | | | | |
| OUT OF WAIT | 272 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .342 | .331 | .000 | .997 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| HQ | | | | | | |
| INTO IDLE | 203 | | | | | |
| OUT OF IDLE | 202 | | | | | |
| # IDLE | | 1.000 | .998 | .047 | 0. | 1.000 |
| IDLE TIME | | | 17512.166 | 22998.438 | 14.274 | 64207.274 |
| INTO BUSY | 202 | | | | | |
| OUT OF BUSY | 202 | | | | | |
| # BUSY | | 0. | .002 | .047 | 0. | 1.000 |
| BUSY TIME | | | 40.269 | 33.861 | 11.250 | 80.993 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 202 | | | | | |
| OUT OF WAIT | 202 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .430 | .375 | .000 | .993 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| L3 | | | | | | |
| INTO IDLE | 85 | | | | | |
| OUT OF IDLE | 84 | | | | | |
| # IDLE | | 1.000 | 1.000 | 0. | 0. | 1.000 |
| IDLE TIME | | | 42056.537 | 80323.981 | .003 | 433207.211 |
| INTO BUSY | 84 | | | | | |
| OUT OF BUSY | 84 | | | | | |
| # BUSY | | 0. | 0. | 0. | 0. | 1.000 |
| BUSY TIME | | | .370 | .313 | .003 | .966 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 84 | | | | | |
| OUT OF WAIT | 84 | | | | | |
| # WAITING | | 0. | 0. | 0. | 0. | 1.000 |
| WAIT TIME | | | .370 | .313 | .003 | .966 |

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| SW1 | | | | | | |
| INTO IDLE | 815 | | | | | |
| OUT OF IDLE | 814 | | | | | |
| # IDLE | | 1.000 | .982 | .133 | 0. | 1.000 |
| IDLE TIME | | | 4273.985 | 10525.150 | 0. | 57398.700 |
| INTO BUSY | 814 | | | | | |
| OUT OF BUSY | 814 | | | | | |
| # BUSY | | 0. | .018 | .133 | 0. | 1.000 |
| BUSY TIME | | | 80.297 | .290 | 80.000 | 80.995 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 814 | | | | | |
| OUT OF WAIT | 814 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| # WAITING | | 0. | .007 | .081 | 0. | 2.000 |
| WAIT TIME | | | 29.133 | 38.414 | 0. | 111.140 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| SW2 | | | | | | |
| INTO IDLE | 781 | | | | | |
| OUT OF IDLE | 780 | | | | | |
| # IDLE | | 1.000 | .983 | .131 | 0. | 1.000 |
| IDLE TIME | | | 4463.041 | 9996.018 | .028 | 56916.874 |
| INTO BUSY | 780 | | | | | |
| OUT OF BUSY | 780 | | | | | |
| # BUSY | | 0. | .017 | .131 | 0. | 1.000 |
| BUSY TIME | | | 80.360 | .339 | 80.000 | 80.999 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 780 | | | | | |
| OUT OF WAIT | 780 | | | | | |
| # WAITING | | 0. | .000 | .009 | 0. | 1.000 |
| WAIT TIME | | | .751 | 5.056 | 0. | 76.678 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| SW3 | | | | | | |
| INTO IDLE | 663 | | | | | |
| OUT OF IDLE | 662 | | | | | |
| # IDLE | | 1.000 | .985 | .120 | 0. | 1.000 |
| IDLE TIME | | | 5271.439 | 10911.478 | .055 | 57913.254 |
| INTO BUSY | 662 | | | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| OUT OF BUSY | 662 | | | | | |
| # BUSY | | 0. | .015 | .120 | 0. | 1.000 |
| BUSY TIME | | | 80.297 | .308 | 80.000 | 80.996 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 662 | | | | | |
| OUT OF WAIT | 662 | | | | | |
| # WAITING | | 0. | .000 | .006 | 0. | 1.000 |
| WAIT TIME | | | .479 | 3.305 | .000 | 60.930 |

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 3600000.00000 UNITS

ACTION REPORT

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| CHGSD.OH | | | | | | |
| USEFUL TIME | 0 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 0 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| CHGND.OH | | | | | | |
| USEFUL TIME | 0 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 0 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| CS OH | | | | | | |
| USEFUL TIME | 898 | .400 | .345 | .000 | .998 | .010 |
| DELAY TIME | 898 | 0. | 0. | 0. | 0. | |



| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| DUMMYACT | | | | | | |
| USEFUL TIME | 0 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 0 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| FORMAT | | | | | | |
| USEFUL TIME | 272 | 2.342 | .331 | 2.000 | 2.997 | .018 |
| DELAY TIME | 272 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| HQ.OH | | | | | | |
| USEFUL TIME | 0 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 0 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| LATENCY | | | | | | |
| USEFUL TIME | 272 | 14.994 | 8.570 | .108 | 30.551 | .113 |
| DELAY TIME | 272 | 0. | 0. | 0. | 0. | |
| OVERHEAD | | | | | | |
| USEFUL TIME | 0 | 0. | 0. | 0. | 0. | 0. |
| DELAY TIME | 0 | 0. | 0. | 0. | 0. | |
| ROUTE.OH | | | | | | |
| USEFUL TIME | 2966 | 80.285 | .316 | 80.000 | 80.999 | 6.615 |
| DELAY TIME | 2966 | 0. | 0. | 0. | 0. | |
| SEEK | | | | | | |
| USEFUL TIME | 272 | 29.400 | 17.716 | .275 | 60.439 | .222 |
| DELAY TIME | 272 | 0. | 0. | 0. | 0. | |
| UPDATE | | | | | | |
| USEFUL TIME | 354 | 8.023 | 5.203 | .102 | 12.224 | .079 |
| DELAY TIME | 354 | 0. | 0. | 0. | 0. | |
| XFER | | | | | | |
| USEFUL TIME | 272 | .841 | .325 | .500 | 1.495 | .006 |
| DELAY TIME | 272 | 0. | 0. | 0. | 0. | |
| XFER.OH | | | | | | |
| USEFUL TIME | 3238 | 443.643 | 424.078 | 81.200 | 1221.449 | 39.903 |
| DELAY TIME | 3238 | 0. | 0. | 0. | 0. | |

SIMULATION TIME = 3600000.00000 UNITS

PROCESS REPORT

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV .. | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| AB-DATA | | | | | | |
| TOTAL | 118 | 0. | 0. | 0. | 0. | 0. |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 118 | 118 | 0 | 118 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| AB-DATA | AIR BASE STATUS BROADCAST TO ALL OTHER NODES |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 118 | | START | | NO | | |
| 118 | | GIVEN | MSG | | | |
| 118 | | RETURN | MSG | | | |
| 118 | | CALL | REQ-I/O | NOWAIT | 10 | PROCESS REQUEST TO CHQ |
| 118 | | GIVEN | CHQ-DATA | 10 | $NOWAIT | |
| 118 | | | 750 | CHQ | MSG | |
| 118 | | CALL | REQ-I/O | NOWAIT | 10 | PROCESS REQUEST TO HQ |
| 118 | | GIVEN | HQ-DATA | 10 | $NOWAIT | |
| 118 | | | 750 | HQ | MSG | |
| 118 | | ASSIGN | $CNODE | | | CURRENT NODE |
| 118 | | | CNODE | | | |
| 118 | | COMPARE | CNODE | | EQ | TEST FOR CURRENT NODE |
| 118 | | | AB1 | | AB1 | |
| 59 | | CALL | REQ-I/O | NOWAIT | 10 | PROCESS REQUEST TO AB1 |
| 59 | | GIVEN | ABUPDATE | 10 | $NOWAIT | |
| 59 | | | 750 | AB1 | MSG | |
| 59 | | BRANCH | END | 100 | | BRANCH TO THE END |
| 59 | AB1 | ENTRY | | | | ENTRY FROM COMPARE NODE |
| 59 | | CALL | REQ-I/O | NOWAIT | 10 | PROCESS REQUEST TO AB2 |
| 59 | | GIVEN | ABUPDATE | 10 | $NOWAIT | |
| 59 | | | 750 | AB2 | MSG | |
| 118 | END | ENTRY | | | | ENTRY FROM REQUEST TO AB1 |
| 118 | | END | | | | |

TOTAL

PAGE 41

| PROCESS | SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| AB-REQ | | | | | | |
| TOTAL | 230 | 572838.793 | 2490.603 | 412.836 | 2193.547 | 5749.134 |
| PPOCESS WAIT | 230 | 572838.793 | 2490.603 | 412.836 | 2193.547 | 5749.134 |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 230 | 230 | 0 | 230 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| AB-REQ | AIRBASE REQUEST FOR PLANS REPORT FROM CHQ |

| COUNT | ENTRY | OPCODE | PARM | P/PM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 230 | | START | | NO | | |
| 230 | | GIVEN | MSG | | | |
| 230 | | RETURN | MSG | | | |
| 230 | | CALL | PEQ-I/O | WAIT | 5 | PROCESS REQUEST TO CHQ |
| 230 | | GIVEN | PLANS | 5 | $WAIT | |
| 230 | | | 200 | CHQ | MSG | |
| 230 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| AEUPDATE | | | | | | |
| TOTAL | 118 | 80.468 | .682 | .341 | .102 | .899 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 118 | 0 | 118 | 118 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 118 | .68 | .10 | .90 | .34 |

| PROCESS | DESCRIPTION |
|---|---|

ABUPDATE UPDATE DATA FROM AIRBASE

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 118 | | START | | NO | | |
| 118 | | GIVEN | MSG | | | |
| 118 | | RETURN | MSG | | | |
| 118 | | UPDATE | CONSTANT | 0.1 | | TIME CONSUMED IN UPDATING |
| 118 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CHLIO | | | | | | |
| TOTAL | 3238 | 2.052E 06 | 633.683 | 845.030 | 81.200 | 3662.099 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 3238 | 616406.096 | 190.366 | 529.890 | 0. | 2996.099 |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 3238 | 0 | 3238 | 3238 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 0 |

| ITEM | PPOCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM... | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 3238 | 633.68 | 81.20 | 3662.10 | 845.03 |

PROCESS DESCRIPTION

CHLIO FULL AND HALF DUPLEX CHANNEL LOGIC

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 3238 | | START | ALL | NO | | |
| 3238 | | GIVEN | MSG | | | |
| 3238 | | ASSIGN | MSG | CNODE | | SET INTERNAL NODE CURRENT |
| 3238 | | | $CNODE | | | |
| 3238 | | ASSIGN | MSG | TNODE | | GET DESTINATION NODE (MSG) |
| 3238 | | | TO.NODE | | | |
| 3238 | | ASSIGN | $NXTNODE | TO.NODE | | SET NEXT NODE TO DEST N |
| 3238 | | | NXT.NODE | | | |
| 3238 | | ASSIGN | $CHANNEL | TO.NODE | | GET CHANNEL TO NEXT NODE |
| 3238 | | | CHANNEL | | | |

```
PAGE   43
 3238          ALLOC     CHANNEL                          OBTAIN CHANNEL FOR X  FER
 3238          ASSIGN    CHANNEL   RATE                   WHAT IS RATE IN SEC/BYTE?
 3238                    VSPEED
 3238          ASSIGN    MSG       LENGTH                 MESSAGE LENGTH IN BYTES
 3238                    VLENGTH
 3238          EVAL      VM.OVHD   MULTIPLY               CALCULATE TRANSFER TIME
 3238                    VSPEED    VLENGTH
 3238          XFER.OH   CONSTANT  VM.OVHD               DELAY DUE TO TRANSFER TIME
 3238          ASSIGN    NXT.NODE                         MESSAGE RESIDES IN NEXT
 3238                    MSG       CNODE
 3238          ASSIGN    NXT.NODE                         SET INTERNAL NODE REGISTER
 3238                    $CNODE
 3238          DEALLOC   CHANNEL                          FREE UP CHANNEL AFTER XFER
 3238          CALL      IHANDLER  NOWAIT   0             INDICATE INTERUPT IN NEXT
 3238          GIVEN     MSG
 3238          END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CHQ-DATA | | | | | | |
| TOTAL | 118 | 1378.976 | 11.686 | .286 | 11.253 | 11.999 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 118 | 0 | 118 | 118 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 118 | 11.69 | 11.25 | 12.00 | .29 |

| PPOCESS | DESCRIPTION |
|---|---|
| CHQ-DATA | CHQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 118 | | START | | NO | | |
| 118 | | GIVEN | MSG | | | |
| 118 | | RETURN | MSG | | | |
| 118 | | ASSIGN | MSG | LENGTH | | MAKE MSG-LENGTH = V.LENGTH |

```
PAGE   44
  118                V.LENGTH
  118          EVAL  V.TIME    MULTIPLY          EVALUATE MSG PROCESS TIME
  118                .015      V.LENGTH
  118          UPDATE CONSTANT V.TIME            PROCESSING TIME CONSUMED
  118          END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| CONTROL | | | | | | |
| TOTAL | 898 | 109808.313 | 122.281 | 179.386 | .000 | 511.669 |
| PROCESS WAIT | 898 | 104140.941 | 115.970 | 139.729 | .102 | 326.516 |
| RESOURCE WAIT | 898 | 6027.206 | 6.712 | 18.110 | .000 | 117.250 |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 898 | 0 | 898 | 898 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 626 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 1524 | 4.13 | .00 | 117.25 | 14.24 |

| PROCESS | DESCRIPTION |
|---|---|
| CONTROL | OPERATING SYSTEM : CONTEXT SWITCHING |

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
  898          START    ALL      NO
  898          GIVEN    MSG
  898          ASSIGN   MSG      CNODE             CURRENT NODE IS CPU
  898                   CP
  898          ALLOC    CP                         SIGNAL CURRENT CPU BUSY
  898          ASSIGN   CP       OSOVHD            MEAN CONTEXT SWITCH TIME
  898                   M.OVHD
  898          CS.CH    CONSTANT M.OVHD            DELAY CONTEXT SWITCH TIME
  898          COMPARE  MSG      TYPE     EQ       IF RESPONSE- RESUME PARENT
  898                   $REQ              REQUEST
  272          ASSIGN   MSG      PTASK             TASK TO RESUME IS IN MSG
  272                   TASK
  272          RESUME   TASK               QUEUE UP TASK FOR NODE
  272          BRANCH   DESTROY  100                END MESSAGE LIFE
  626 REQUEST  ENTRY                                ELSE-> CALL REQUESTED PROC
```

```
PAGE   45
 626          ASSIGN   MSG      RTASK                EXECUTE THE CALLED PROCESS
 626                   PROCESS
 626          CALL     PROCESS  WAIT     0           WAIT UNTIL COMPLETE
 626          GIVEN    MSG
 626          RETURN   MSG
 626          COMPARE  MSG      RESPONSE EQ          IF WAIT -> SEND MSG BACK
 626                   $NOWAIT           DESTROY
 272          ASSIGN   $RESP                         CHANGE MSG RESPONSE TYPE
 272                   MSG      TYPE
 272          ASSIGN   MSG      FNODE                SWITCH FROM AND TO NODES
 272                   MSG      TNODE
 272          ASSIGN   MSG      CNODE                CURRENT NODE IS FROM NODE
 272                   MSG      FNODE
 272          CALL     CHLIO    WAIT     0           RETURN MESSAGE TO ORIGIN
 272          GIVEN    MSG
 272          BRANCH   END      100
 626 DESTROY  ENTRY                                  TERMINATE MESSAGE AT DEST.
 626          DESTROY  MSG                           NO RESPONSE-TERMINATE MSG
 898 END      ENTRY
 898          DEALLOC  CP                            INDICATE CP SWITCH DONE
 898          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
DISK.OP
          TOTAL      272  12122.005     44.566     19.646      4.115     87.551
   PROCESS WAIT        0       0.         0.         0.         0.         0.
  RESOURCE WAIT      272     93.076       .342       .331       .000       .997

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
            272        0      272      272        0        0

PROCESS          DESCRIPTION
======== ======== ==================================================
DISK.OP          OPERATION OF DISK

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
  272          START             NO
  272          GIVEN    LENGTH   DISK
  272          ASSIGN   DISK     SPEED              MAKE DISK SPEED = V.SPEED
  272                   V.SPEED
  272          EVAL     XFERTIME DIVIDE             TRANSFER TIME CALCULATED
  272                   LENGTH   V.SPEED
  272          ALLOC    DISK                        DISK ALLOCATED
  272          ASSIGN   DISK     SEEK               MAKE SEEKTIME = SEEK
```

```
PAGE   46
  272                    SEEKTIME
  272           SEEK     UNIFORM  SEEKTIME SEEKTIME TIME FOR SEEK IS CONSUMED
  272           ASSIGN   DISK     LATENCY           MAKE DISKLATENCY=LATETIME
  272                    LATETIME
  272           LATENCY  UNIFORM  LATETIME LATETIME TIME CONSUMED FOR LATENCY
  272           XFER     CONSTANT XFERTIME          TRANSFER TIME CONSUMED
  272           DEALLOC  DISK                       DISK RESOURCE DEALLOCATED
  272           END

                  TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
---------------- -------- --------- --------- --------- --------- ---------
ESP-CALL
          TOTAL       626 720615.520   1151.143   1254.203     80.000   5749.134
   PROCESS WAIT       626  50172.093     80.147       .276     80.000     80.996
  RESOURCE WAIT       272     92.485       .340       .325       .000       .998

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        -------- -------- -------- -------- -------- --------
            626        0      626      626        0        0

         ITEM     CREATED  RECEIVED SENT     DESTR'D
         -------- -------- -------- -------- --------
         MSG             0        0        0        0

                   PROCESS  HOLDING  TIME
         ITEM     # SMPLS  MEAN..... MINIMUM.. MAXIMUM... STD DEV...
         -------- -------- --------- --------- --------- ---------
         MSG           626       .15       0.       1.00       .28

PROCESS          DESCRIPTION
-------- -------- ------------------------------------------------------------
ESP-CALL         OPERATING SYSTEM: EXECUTIVE SERVICE REQUEST (CALL )

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
----- -------- -------- -------- -------- -------- ----------------------------
  626          START    ALL      NO
  626          GIVEN    MSG
  626          ASSIGN   $TASK                      $TASK= INSTANCE TO RESUME
  626                   MSG      PTASK
  626          ASSIGN   MSG      RESPONSE         OPTION= $WAIT OR $NOWAIT
  626                   RESP.OPT
  626          CALL     ROUTER   WAIT     0       INITIATE ROUTING TO DEST.
  626          GIVEN    MSG
  626          COMPARE  RESP.OPT          EQ       SHOULD PARENT SUSPEND ?
  626                   $NOWAIT           END
  272          SUSPEND                             PROCESS CALLED WAIT
  626 END      ENTRY                               CONTINUE OR RESUME POINT
```

```
  626          END

                TOTAL
PROCESS         SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========= ========= ========= ========= =========
HQ-DATA
          TOTAL      118  1390.860    11.702      .400    11.250    12.224
   PROCESS WAIT        0       0.        0.        0.        0.        0.
  RESOURCE WAIT        0       0.        0.        0.        0.        0.

       TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
       SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
       ======== ======== ======== ======== ======== ========
          118        0      118      118        0        0

        ITEM     CREATED  RECEIVED SENT     DESTR'D
        ======== ======== ======== ======== ========
        MSG             0        0        0        0

                 PROCESS  HOLDING  TIME
        ITEM     # SMPLS  MEAN..... MINIMUM.. MAXIMUM... STD DEV...
        ======== ======== ========= ========= ========= =========
        MSG           118      11.70     11.25     12.22       .40

PROCESS          DESCRIPTION
======== ======== ============================================================
HQ-DATA          HQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
  118          START             NO
  118          GIVEN    MSG
  118          RETURN   MSG
  118          ASSIGN   MSG      LENGTH            MAKE MSG-LENTH = V.LENGTH
  118                   V.LENGTH
  118          EVAL     V.TIME   MULTIPLY          EVALUATE MSG PROCESS TIME
  118                   .015     V.LENGTH
  118          UPDATE   CONSTANT V.TIME            PROCESSING TIME CONSUMED
  118          END

                TOTAL
PROCESS         SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========= ========= ========= ========= =========
HQ-REQ
          TOTAL       42 119456.726  2844.208   387.466  2693.211  4578.787
   PROCESS WAIT       42 119456.726  2844.208   387.466  2693.211  4578.787
  RESOURCE WAIT        0       0.        0.        0.        0.        0.

       TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
```

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| SCHEDULE | SCHEDULE | SCHEDULE | COMPLETE | COMPLETE | SUSPEND. |
|---|---|---|---|---|---|
| 42 | 42 | 0 | 42 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| HQ-REQ | HQ REQUEST FOR STATUS DISPLAY FROM CHQ |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 42 | | START | L3 | NO | | |
| 42 | | GIVEN | MSG | | | |
| 42 | | RETURN | MSG | | | |
| 42 | | CALL | REQ-I/O | WAIT | 4 | MAKES I/O REQUEST TO CHQ |
| 42 | | GIVEN | PLANS | 4 | $WAIT | |
| 42 | | | 200 | CHQ | MSG | |
| 42 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM ..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| IHANDLER | | | | | | |
| TOTAL | 3238 | 212213.934 | 65.539 | 46.269 | .000 | 191.140 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 2340 | 24649.986 | 10.534 | 26.636 | 0. | 111.140 |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 3238 | 0 | 3238 | 3239 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 3238 | 65.54 | .00 | 191.14 | 46.27 |

| PROCESS | DESCRIPTION |
|---|---|
| IHANDLER | OPERATING SYSTEM : INTERUPT HANDLING AND ROUTING |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 3238 | | START | ALL | NO | | |
| 3238 | | GIVEN | MSG | | | |
| 3238 | | ASSIGN | MSG | CNODE | | INDICATE CURRENT NODE CPU |

```
 3238                    CP
 3238          COMPARE   MSG       CNODE     EQ        IS MSG AT DESTINATION ?
 3238                    MSG       TNODE     CONTROL
 2340          ASSIGN    CP        NETINSTR            MONITOR OVERHEAD FOR PLOT
 2340                    M.OVHD
 2340          ALLOC     CP                            OBTAIN CP-HANDLE INTERUPT
 2340          ROUTE.OH  CONSTANT  M.OVHD              DELAY FOR ROUTING
 2340          DEALLOC   CP                            RELEASE CPU TO OTHERS
 2340          CALL      CHLIO     NOWAIT    0         FORWARD MESSAGE WITH I/O
 2340          GIVEN     MSG
 2340          BRANCH    END       100
  898 CONTROL  ENTRY                                   MESSAGE AT DESTINATION
  898          COMPARE   MSG       TYPE      EQ        IF RESPONSE-UP PRIORITY
  898                    $RESP               HPCONTRL
  626          ASSIGN    MSG       TASKPRI             SET MESSAGE PRIORITY
  626                    PRIORITY
  898 HPCONTRL ENTRY                                   PRIORITY=0 IF UNDEFINED
  898          CALL      CONTROL   NOWAIT    PRIORITY  CONTEXT SWITCH MESSAGE
  898          GIVEN     MSG
 3238 END      ENTRY
 3238          END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| PLANS | | | | | | |
| TOTAL | 272 | 12666.005 | 46.566 | 19.646 | 6.115 | 89.551 |
| PROCESS WAIT | 272 | 12122.005 | 44.566 | 19.646 | 4.115 | 87.551 |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 272 | 0 | 272 | 272 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 0 | 0 | 0 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 272 | 46.57 | 6.11 | 89.55 | 19.65 |

| PROCESS | DESCRIPTION |
|---|---|
| PLANS | REQUEST FOR PLANS FROM CHQ |

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
```

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| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 272 | | START | CHQ | NO | | |
| 272 | | GIVEN | MSG | | | |
| 272 | | RETURN | MSG | | | |
| 272 | | ASSIGN | MSG | LENGTH | | MAKE MSG LENGTH = V.LENGTH |
| 272 | | | V.LENGTH | | | |
| 272 | | EVAL | V.TIME | MULTIPLY | | EVALUATE MSG PROCESS TIME |
| 272 | | | .01 | V.LENGTH | | |
| 272 | | FORMAT | CONSTANT | V.TIME | | TIME USED TO FORMAT PLANS |
| 272 | | CALL | DISK.OP | WAIT | 10 | CALLING PROCESS DISK.OP |
| 272 | | GIVEN | 10000 | DK1 | | |
| 272 | | ASSIGN | 10000 | | | AUGMENT MSG TO 10000 |
| 272 | | | V.LENGTH | | | |
| 272 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| REQ-I/O | | | | | | |
| TOTAL | 626 | 720615.520 | 1151.143 | 1254.203 | 80.000 | 5749.134 |
| PROCESS WAIT | 626 | 720615.520 | 1151.143 | 1254.203 | 80.000 | 5749.134 |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 626 | 0 | 626 | 626 | 0 | 0 |

| ITEM | CREATED | RECEIVED | SENT | DESTR'D |
|---|---|---|---|---|
| MSG | 626 | 0 | 0 | 0 |

| ITEM | PROCESS HOLDING TIME # SMPLS | MEAN..... | MINIMUM.. | MAXIMUM... | STD DEV... |
|---|---|---|---|---|---|
| MSG | 626 | .15 | 0. | 1.00 | .28 |

| PROCESS | DESCRIPTION |
|---|---|
| REQ-I/O | GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 626 | | START | ALL | NO | | |
| 626 | | GIVEN | PROCESS | PRIORITY | RESP.OPT | |
| 626 | | | MSG.LNTH | TO.NODE | MSG | |
| 626 | | CREATE | MSG | | | CREATE MESSAGE DATA TO RTE |
| 626 | | ASSIGN | $CNODE | | | INDICATE CURRENT NODE |
| 626 | | | MSG | CNODE | | |

```
PAGE   51
 626          ASSIGN   $CNODE                          INDICATE CURRENT NODE FROM
 626                   MSG      FNODE
 626          ASSIGN   PROCESS                         INDICATE REQUESTED PROCESS
 626                   MSG      RTASK
 626          ASSIGN   PRIORITY                        INDICATE RELATIVE PRIORITY
 626                   MSG      TASKPRI
 626          ASSIGN   RESP.OPT                        $NOWAIT OR $ WAIT ON CALL
 626                   MSG      RESPONSE
 626          ASSIGN   MSG.LNTH                        INDICATE LENGTH IN BYTES
 626                   MSG      LENGTH
 626          COMPARE  TO.NODE            EQ           WHERE DOES PROCESS RESIDE
 626                   $NO                END
 626          COMPARE  TO.NODE            EQ           DEFAULT TO NODE SELECT
 626                   $YES               GETNODE
 626          ASSIGN   TO.NODE                         ELSE-> NODE IS GIVEN
 626                   MSG      TNODE
 626          BRANCH   END      100
   0 GETNODE  ENTRY                                    DETERMINE NODE FROM PROC.
   0          ASSIGN   $NODE    PROCESS                $NODE OF PROCESS IN DEF
   0                   MSG      TNODE
 626 END      ENTRY                                    SEND MSG FOR SERVICE
 626          CALL     ESR-CALL WAIT      0            EXECUTIVE SERVICING OF MSG
 626          GIVEN    MSG
 626          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
ROUTER
        TOTAL       626  50172.093     80.147       .276     80.000     80.996
  PROCESS WAIT        0       0.         0.         0.         0.         0.
 RESOURCE WAIT        0       0.         0.         0.         0.         0.

      TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
      SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
      ======== ======== ======== ======== ======== ========
         626        0      626      626        0        0

      ITEM     CREATED  RECEIVED SENT     DESTR'D
      ======== ======== ======== ======== ========
      MSG            0        0        0        0

                 PROCESS  HOLDING  TIME
      ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
      ======== ======== ========== ========== ========== ==========
      MSG           626      80.15      80.00      81.00        .28

PROCESS          DESCRIPTION
======== ======== ==================================================
```

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
  626           START    ALL      NO
  626           GIVEN    MSG
  626           ASSIGN   MSG      CNODE             INDICATE CURRENT NODE CPU
  626                    CP
  626           COMPARE  MSG      CNODE    EQ       IS MSG AT DESTINATION ?
  626                    MSG      TNODE    CONTROL
  626           ASSIGN   CP       NETINSTR          MONITOR OVERHEAD FOR PLOT
  626                    M.OVHD
  626           ROUTE.OH CONSTANT M.OVHD            DELAY FOR ROUTING
  626           CALL     CHLIO    NOWAIT   0        FORWARD MESSAGE WITH I/O
  626           GIVEN    MSG
  626           BRANCH   END      100
    0 CONTROL   ENTRY                               MESSAGE AT DESTINATION
    0           COMPARE  MSG      TYPE     EQ       IF RESPONSE-UP PRIORITY
    0                    RESP              HPCONTRL
    0           ASSIGN   MSG      TASKPRI           SET MESSAGE PRIORITY
    0                    PRIORITY
    0 HPCONTRL  ENTRY                               PRIORITY=0 IF UNDEFINED
    0           CALL     CONTROL  NOWAIT   PRIORITY CONTEXT SWITCH MESSAGE
    0           GIVEN    MSG
  626 END       ENTRY
  626           END
```



```
                TOTAL
PROCESS         SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
TRACE
          TOTAL         1       0.         0.         0.         0.         0.
  PROCESS WAIT          0       0.         0.         0.         0.         0.
 RESOURCE WAIT          0       0.         0.         0.         0.         0.

      TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
      SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
      ======== ======== ======== ======== ======== ========
             1        1        0        1        0        0

PROCESS         DESCRIPTION
======== ======== ============================================================
TRACE            TURN ON TRACE OUTPUT

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    1           START    ALL      NO
    1           COMPARE  V.TRACE          EQ       TEST IF FLAG SET FOR TRACE
    1                    0                NOTRACE
```

```
PAGE   53
     0          TRACE    ON
     1 NOTRACE  ENTPY
     1          END
```

# APPENDIX D

TEST 5 Statistics - Results Verification for

TESTDBE.DBF

PAGE 13

SIMULATION TIME = 10000.00000 UNITS

CONSTANT REPORT

| CONSTANT | CURRENT VALUE... |
|---|---|
| C100 | 100.000 |
| C5 | 5.000 |
| C50 | 50.000 |

PAGE 14

SIMULATION TIME = 10000.00000 UNITS

VARIABLE REPORT

NUMERIC VARIABLES...

| VARIABLE | TOTAL SAMPLES. | VALUE CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| VABS | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VADD | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VARCOS | 89 | 2.000 | 2.000 | .000 | 2.000 | 2.000 |
| VARCSIN | 89 | 1.142 | 1.142 | .000 | 1.142 | 1.142 |
| VARCTAN | 89 | -1.142 | -1.142 | .000 | -1.142 | -1.142 |
| VBETA | 89 | .829 | .778 | .990 | .427 | 10.000 |
| VBTN | 89 | 100.000 | 98.882 | 10.488 | .500 | 100.000 |
| VCOS | 89 | -.416 | -.416 | .000 | -.416 | -.416 |
| VCTABLE | 8 | 85.000 | 50.000 | 32.977 | 0. | 100.000 |
| VDIV | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VCTABLE | 8 | 80.000 | 47.500 | 33.072 | 0. | 100.000 |
| VERLANG | 89 | 9.710 | 11.214 | 10.256 | 3.937 | 100.000 |
| VEXP | 89 | 3.343 | 8.720 | 9.029 | .058 | 53.791 |
| VEXPE | 89 | 100.000 | 100.000 | .000 | 100.000 | 100.000 |
| VEXPLO | 89 | 100.000 | 100.000 | .000 | 100.000 | 100.000 |
| VGAMMA | 89 | 9.559 | 9.776 | 4.187 | 2.462 | 21.478 |
| VLOGE | 89 | 4.605 | 4.605 | .000 | 4.605 | 4.605 |
| VLOGN | 89 | 18.377 | 10.271 | 5.588 | 2.650 | 36.699 |
| VLOG10 | 89 | 2.000 | 2.000 | .000 | 2.000 | 2.000 |
| VMULT | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VNEGSYQ | 197 | 2.000 | 1.980 | .200 | 0. | 2.000 |
| VNEGSEQ | 197 | 0. | .010 | .142 | 0. | 2.000 |
| VNORMAL | 89 | 15.818 | 10.415 | 4.679 | -3.137 | 22.386 |
| VNUMITQ | 197 | 194.000 | 96.711 | 56.156 | 0. | 194.000 |
| VPOISSON | 89 | 7.000 | 11.371 | 10.998 | 1.000 | 110.000 |
| VPOWER | 2 | 10.000 | 10.000 | .000 | 10.000 | 10.000 |
| VPRN | 89 | .660 | .544 | .253 | .009 | .993 |
| VSIN | 89 | .909 | .909 | .000 | .909 | .909 |
| VSQRT | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VSUB | 2 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |
| VTAN | 89 | -2.185 | -2.185 | .000 | -2.185 | -2.185 |
| VUNIFORM | 89 | 9.973 | 10.321 | 2.695 | 5.232 | 14.917 |
| VWEIBULL | 1 | 10.000 | 10.000 | 0. | 10.000 | 10.000 |

NON-NUMERIC VARIABLES...

| | CURRENT | CURRENT |
|---|---|---|

| VARIABLE | TYPE | VALUE |
| --- | --- | --- |

SIMULATION TIME = 10000.00000 UNITS

RESOURCE REPORT

| RESOURCE | TOTAL NUMBER | CURRENT... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| RES1 | | | | | | |
| INTO IDLE | 200 | | | | | |
| OUT OF IDLE | 200 | | | | | |
| # IDLE | | 0. | .019 | .194 | 0. | 2.000 |
| IDLE TIME | | | .948 | 9.430 | 0. | 94.778 |
| INTO BUSY | 200 | | | | | |
| OUT OF BUSY | 198 | | | | | |
| # BUSY | | 2.000 | 1.981 | .194 | 0. | 2.000 |
| BUSY TIME | | | 100.000 | .000 | 100.000 | 100.000 |
| INTO INACT. | 0 | | | | | |
| OUT OF INACT. | 0 | | | | | |
| # INACTIVE | | 0. | 0. | 0. | 0. | 0. |
| INACTIVE TIME | | | 0. | 0. | 0. | 0. |
| INTO WAIT | 396 | | | | | |
| OUT OF WAIT | 200 | | | | | |
| # WAITING | | 196.000 | 97.385 | 56.390 | 0. | 198.000 |
| WAIT TIME | | | 2494.253 | 1432.089 | 0. | 4900.461 |

CURRENTLY ALLOCATED TO PROCESSES: OFD11 OFD11

PROCESSES CURRENTLY WAITING:

| | | | | |
|---|---|---|---|---|
| OFD11 | OFD11 | OFD11 | OFD11 | OFD11 |
| OFD11 | OFD11 | OFD11 | OFD11 | OFD11 |
| OFD11 | OFD11 | OFD11 | OFD11 | OFD11 |
| OFD11 | OFD11 | OFD11 | OFD11 | OFD11 |
| OFD11 | OFD11 | OFD11 | OFD11 | OFD11 |
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OFD11

SIMULATION TIME = 10000.00000 UNITS

ACTION REPORT

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| EVALUATE | | | | | | |
| USEFUL TIME | 359 | 98.009 | 18.488 | 10.000 | 205.866 | 351.854 |
| DELAY TIME | 359 | 0. | 0. | 0. | 0. | |

| ACTION | TOTAL SAMPLES | MEAN..... | STD DEV... | MINIMUM.. | MAXIMUM... | % TIME OF TOTAL. |
|---|---|---|---|---|---|---|
| PROCESS | | | | | | |
| USEFUL TIME | 577 | 100.146 | 64.527 | 0. | 438.299 | 577.845 |
| DELAY TIME | 577 | 0. | 0. | 0. | 0. | |

SIMULATION TIME = 10000.00000 UNITS

PROCESS REPORT

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFDINIT | | | | | | |
| TOTAL | 88 | .077 | .001 | .001 | 0. | .004 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 89 | 0 | 88 | 88 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFDINIT | OFD INITIATOR FOR 6 THROUGH 10 |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 89 | | START | | NO | | |
| 88 | | ASSIGN | 6 | | | LOOP COUNTER AND TBL INDEX |
| 89 | | | COUNTER | | | |
| 528 | NEXT | ENTRY | | | | CYCLE FOR ALL OFDS |
| 528 | | COMPARE | COUNTER | | GT | |
| 528 | | | 10 | | END | |
| 440 | | EVAL | OFD | ALPHATBL | | INDEX INTO ALPHA TABLE |
| 440 | | | COUNTER | | | |
| 440 | | CALL | [illegible] | NOWAIT | 0 | INITIATE OFD INDEX COUNTER |
| 440 | | EVAL | [illegible] | ADD | | INCREMENT LOOP COUNTER |
| 440 | | | COUNTER | 1 | | |
| 440 | | BRANCH | NEXT | 100 | | |
| 89 | END | ENTRY | | | | |
| 89 | | END | | | | |



| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD1 | | | | | | |
| TOTAL | 84 | 8846.327 | 105.313 | 98.964 | .262 | 438.299 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|

```
        89       88        0       84        4        0

PROCESS          DESCRIPTION
-------- -------- ------------------------------------------------------
OFD1             TEST EXPONENTIAL DISTRIBUTION AND COMPARE

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
----- -------- -------- -------- -------- -------- ----------------------------
   89           START
   88           CALL     OFDINIT  NOWAIT   0        INITIATE OFDS 6-10
   85           PROCESS  EXPONENT 100.0             TST EXPONENTIAL ACTIO
   84           ASSIGN   1.0
   84                    LOCAL1
   84           ASSIGN   2.0
   84                    LOCAL2
   84           ASSIGN   3.0
   84                    LOCAL3
   84 TESTEQ    ENTRY                               TEST COMPARE EQ
   84           COMPARE  LOCAL1           EQ
   84                    LOCAL2           EQTEST
   84           BRANCH   EQTEST   100               TEST FALL THRU
   84 EQTEST    ENTRY
   84           COMPARE  LOCAL3           EQ
   84                    LOCAL3           TESTNE
    0           BRANCH   TESTNE   100               TEST FALL THRU
   84 TESTNE    ENTRY                               TEST COMPARE NE
   84           COMPARE  LOCAL3           NE
   84                    LOCAL3           NETEST
   84           BRANCH   NETEST   100               TEST FALL THRU
   84 NETEST    ENTRY
   84           COMPARE  LOCAL1           NE
   84                    LOCAL2           TESTLT
    0           BRANCH   TESTLT   100               TEST FALL THRU
   84 TESTLT    ENTRY                               TEST COMPARE LT
   84           COMPARE  LOCAL3           LT
   84                    LOCAL1           LTTEST
   84           BRANCH   LTTEST   100               TEST FALL THRU
   84 LTTEST    ENTRY
   84           COMPARE  LOCAL1           LT
   84                    LOCAL3           TESTGT
    0           BRANCH   TESTGT   100               TEST FALL THRU
   84 TESTGT    ENTRY                               TEST COMPARE GT
   84           COMPARE  LOCAL1           GT
   84                    LOCAL2           GTTEST
   84           BRANCH   GTTEST   100               TEST FALL THRU
   84 GTTEST    ENTRY
   84           COMPARE  LOCAL2           GT
   84                    LOCAL1           TESTLE
```

```
PAGE   21
     0            BRANCH   TESTLE   100              TEST FALL THRU
    84 TESTLE     ENTRY                              TEST COMPARE LE
    84            COMPARE  LOCAL3            LE
    84                     LOCAL1            LETEST1
    84            BRANCH   LETEST1  100              TEST FALL THRU
    84 LETEST1    ENTRY
    84            COMPARE  LOCAL2            LE
    84                     LOCAL2            LETEST2
     0            BRANCH   LETEST2  100              TEST FALL THRU
    84 LETEST2    ENTRY
    84            COMPARE  LOCAL1            LE
    84                     LOCAL3            TESTGE
     0            BRANCH   TESTGE   100              TEST FALL THRU
    84 TESTGE     ENTRY                              TEST COMPARE GE
    84            COMPARE  LOCAL1            GE
    84                     LOCAL3            GETEST1
    84            BRANCH   GETEST1  100              TEST FALL THRU
    84 GETEST1    ENTRY
    84            COMPARE  LOCAL2            GE
    84                     LOCAL2            GETEST2
     0            BRANCH   GETEST2  100              TEST FALL THRU
    84 GETEST2    ENTRY
    84            COMPARE  LOCAL3            GE
    84                     LOCAL1            TESTEND
     0            BRANCH   TESTEND  100              TEST FALL THRU
    84 TESTEND    ENTRY                              END OF COMPARE TESTING
    84            END

                   TOTAL
PROCESS           SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
================ ======== ========== ========== ========== ========== ==========
OFD10
          TOTAL        88       .077       .001       .001       0.          .004
   PROCESS WAIT         0       0.         0.         0.         0.         0.
  RESOURCE WAIT         0       0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
             88        0       88       88        0        0

PROCESS          DESCRIPTION
======== ======== ============================================================
OFD10             TEST INTERVAL SCHEDULE AND EVAL TRIG FUNCTIONS

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    88          START
    88          EVAL     VLOG10   LOG10
```

```
   88                   100.0
   88          EVAL     VEXP10   POWER
   88                   10.0     VLOG10
   88          EVAL     VLOGE    LOGE
   88                   100.0
   88          EVAL     VEXPE    POWER
   88                   2.718281 VLOGE
   88          EVAL     VSIN     SINE
   88                   2
   88          EVAL     VARCSIN  ARCSINE
   88                   VSIN
   88          EVAL     VCOS     COSINE
   88                   2
   88          EVAL     VARCOS   ARCOSINE
   88                   VCOS
   88          EVAL     VTAN     TANGENT
   88                   2
   88          EVAL     VARCTAN  ARCTAN
   88                   VTAN
   89          END
```

| PROCESS | TOTAL SAMPLES | SUM..... | MEAN..... | STD DEV. . | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD11 | | | | | | |
| TOTAL | 196 | 502849.689 | 2569.948 | 1418.633 | 100.000 | 4920.950 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 200 | 498850.612 | 2494.253 | 1432.089 | 0. | 4900.461 |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 396 | 0 | 396 | 198 | 198 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD11 | TEST ALLOCATE & DEALLOCATE RESOURCE |

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
  396          START
  396          ALLOC    RES1                       TEST ALLOCATE
  200          PROCESS  CONSTANT 100.0
  198          DEALLOC  RES1                       TEST DEALLOCATE
  198          END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

OFD2

| | | | | | |
|---|---|---|---|---|---|
| TOTAL | 97 | 10006.439 | 103.159 | 75.687 | 10.643 | 384.404 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 99 | 99 | 0 | 97 | 2 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD2 | TEST LOGNORML DISTRIBUTION AND ASSIGN |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 99 | | START | | | | |
| 99 | | ASSIGN | RES1 | NIDLEQ | | |
| 99 | | | VNIDLEQ | | | |
| 99 | | ASSIGN | RES1 | NBUSYQ | | |
| 99 | | | VNBUSYQ | | | |
| 99 | | ASSIGN | RES1 | NWAITQ | | |
| 99 | | | VNWAITQ | | | |
| 396 | CALL | ENTRY | | | | SET UP RESOURCE UTIL |
| 396 | | CALL | OFD11 | NOWAIT | 2.0 | SCHEDULE A NOWAIT PROCESS |
| 396 | | LOOP | CALL | 4.0 | | LOOP 4 TIMES |
| 99 | | PROCESS | LOGNORML | 100.0 | 100.0 | |
| 97 | | ASSIGN | RES1 | NIDLEQ | | |
| 97 | | | VNIDLEQ | | | |
| 97 | | ASSIGN | RES1 | NBUSYQ | | |
| 97 | | | VNBUSYQ | | | |
| 97 | | ASSIGN | RES1 | NWAITQ | | |
| 97 | | | VNWAITQ | | | |
| 97 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD3 | | | | | | |
| TOTAL | 100 | 8678.027 | 86.780 | 83.669 | 0. | 347.274 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 100 | 100 | 0 | 100 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|

OFD3 TEST NORMAL DISTRIBUTION

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 100 | | START | | | | |
| 100 | | PROCESS | NORMAL | 100.0 | 100.0 | |
| 100 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD4 | | | | | | |
| TOTAL | 98 | 10453.613 | 106.670 | 55.230 | .175 | 199.974 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 99 | 99 | 0 | 98 | 1 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD4 | TEST UNIFORM DISTRIBUTION |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 99 | | START | | | | |
| 99 | | PROCESS | UNIFORM | 100.00 | 100.00 | |
| 98 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD5 | | | | | | |
| TOTAL | 94 | 9265.262 | 98.567 | 10.371 | 78.420 | 122.442 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 95 | 95 | 0 | 94 | 1 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD5 | TEST ERLANG DISTRIBUTION |

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| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 95 | | START | | | | |
| 95 | | EVALUATE | ERLANG | 100.0 | 100.0 | TEST |
| 94 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD6 | | | | | | |
| TOTAL | 66 | 6557.561 | 99.507 | 1.218 | 95.302 | 101.497 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 88 | 0 | 88 | 86 | 2 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD6 | TEST WEICULL DISTRIBUTION |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 83 | | START | | | | |
| 83 | | EVALUATE | WEIBULL | 100.0 | 100.0 | TEST |
| 86 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD7 | | | | | | |
| TOTAL | 86 | 8602.464 | 100.029 | 27.509 | 58.290 | 205.866 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 83 | 0 | 88 | 86 | 2 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD7 | TEST GAMMA DISTRIBUTION |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 88 | | START | | | | |

PAGE 26

```
   88          EVALUATE GAMMA    100.0    20.          TEST
   86          END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| OFD3 | | | | | | |
| TOTAL | 88 | .077 | .001 | .001 | 0. | .004 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 88 | 0 | 88 | 88 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD3 | TEST POISSON SCHEDULE AND EVAL DISTRIBUTIONS |

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
    88         START
    88         EVAL     VRAN     RANDOM
    88
    88         EVAL     VBIN     BINOMIAL
    88                  100.0    10.0
    88         EVAL     VBETA    BETA
    88                  10.0     5.0
    88         EVAL     VERLANG  ERLANG
    88                  10.0     5.0
    88         EVAL     VEXP     EXPONENT
    88                  10.0
    88         EVAL     VGAMMA   GAMMA
    88                  10.0     5.0
    88         EVAL     VLOGN    LOGNORML
    88                  10.0     5.0
    88         EVAL     VNORMAL  NORMAL
    88                  10.0     5.0
    88         EVAL     VPOISSON POISSON
    88                  10.0
    88         EVAL     VUNIFORM UNIFORM
    88                  10.0     5.0
    88         EVAL     VWEIBULL WEIBULL
    88                  10.0     5.0
    88         END
```

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|

OFD9

| | | | | | | |
|---|---|---|---|---|---|---|
| TOTAL | 66 | 8600.073 | 100.001 | .001 | 100.000 | 100.004 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 85 | 0 | 88 | 86 | 2 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| OFD9 | TEST START SCHEDULE AND CONSTANT ACTION |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 88 | | START | | | | |
| 89 | | EVALUATE | CONSTANT | 100.00 | | TEST |
| 86 | | END | | | | |

| PROCESS | TOTAL SAMPLES. | SUM..... | MEAN..... | STD DEV... | MINIMUM... | MAXIMUM... |
|---|---|---|---|---|---|---|
| TIMECALL | | | | | | |
| TOTAL | 1 | 160.000 | 160.000 | 0. | 160.000 | 160.000 |
| PROCESS WAIT | 0 | 0. | 0. | 0. | 0. | 0. |
| RESOURCE WAIT | 0 | 0. | 0. | 0. | 0. | 0. |

| TOTAL # SCHEDULE | # AUTO SCHEDULE | # CALL SCHEDULE | # OF COMPLETE | # NOT COMPLETE | # TIMES SUSPEND. |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 0 | 0 |

| PROCESS | DESCRIPTION |
|---|---|
| TIMECALL | TEST TIME CALL SCHEDULE AND EVAL ARITHMETIC/TABLE |

| COUNT | ENTRY | OPCODE | PARM | PARM | PARM | COMMENT |
|---|---|---|---|---|---|---|
| 1 | | START | | | | |
| 1 | | EVAL | VADD | ADD | | |
| 1 | | | 20.5 | -10.5 | | |
| 1 | | EVALUATE | CONSTANT | 100.0 | | |
| 1 | | EVAL | VSUB | SUBTRACT | | |
| 1 | | | 6.5 | -3.5 | | |
| 1 | | EVALUATE | CONSTANT | VSUB | | TEST |
| 1 | | EVAL | VMULT | MULTIPLY | | |
| 1 | | | -2.5 | -4.0 | | |

```
PAGE   28
     1          EVALUATE CONSTANT VMULT
     1          EVAL     VDIV     DIVIDE
     1                   -4.0     -0.40
     1          EVALUATE CONSTANT VDIV
     1          EVAL     VPOWER   POWER
     1                   3.162277 2.0
     1          EVALUATE CONSTANT VPOWER
     1          EVAL     VSQRT    SQRT
     1                   100.0
     1          EVALUATE CONSTANT VSQRT
     1          EVAL     VABS     ABSOLUTE
     1                   -10.0
     1          EVALUATE CONSTANT VABS
     1          EVAL     VCTABLE  TCON
     1                   -50
     1          EVAL     VDTABLE  TDIS
     1                   -50.0
     1          EVAL     VCTABLE  TCON
     1                   1050.0
     1          EVAL     VDTABLE  TDIS
     1                   1050.0
     1          EVAL     VCTABLE  TCON
     1                   150.0
     1          EVAL     VDTABLE  TDIS
     1                   150.0
     1          EVAL     VCTABLE  TCON
     1                   250.0
     1          EVAL     VDTABLE  TDIS
     1                   250.0
     1          EVAL     VCTABLE  TCON
     1                   500.0
     1          EVAL     VDTABLE  TDIS
     1                   500.0
     1          EVAL     VCTABLE  TCON
     1                   750.0
     1          EVAL     VDTABLE  TDIS
     1                   750.0
     1          EVAL     VCTABLE  TCON
     1                   850.0
     1          EVAL     VDTABLE  TDIS
     1                   850.0
     1          END
```



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